FINAL REPORT

APPLICATION FOR CLASS I, NON-HAZARDOUS UNDERGROUND INJECTION WELL PERMIT

Scepter, Inc.
6467 N. Scepter Road
Bicknell, Indiana 47512

Prepared for
U.S. Environmental Protection Agency
Region 5
UIC Branch (WU-16J)
77 W. Jackson Blvd.
Chicago, Illinois 60604-3590

October 10, 2008

URS

URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317
and
URS Corporation
One Indiana Square, Suite 2100
Indianapolis, Indiana 46204

As built well data, Scepter, IN IW-1
Thomas_Kwader to: William Bates 02/12/2010 03:16 PM

Bill ,

Some well data to get you stared,
Also on Figure, M-1 As built of well in last sibmittal (MIT, Integrity Test Report)
Sent on separate email,

Land Surface 533 ft amsl

Surface casing: 600 ft 8 in (ID), cemented with 600 bags of Class A cement, by Haliburton method with returns to land surface,

Long String: 5.5 in OD (5 in ID) LS to 1893 ft, cement volume ____, Cement Bond Log -available

TD: 2138 (7-7/8 in), open hole: 1893- 2183 (290 ft)

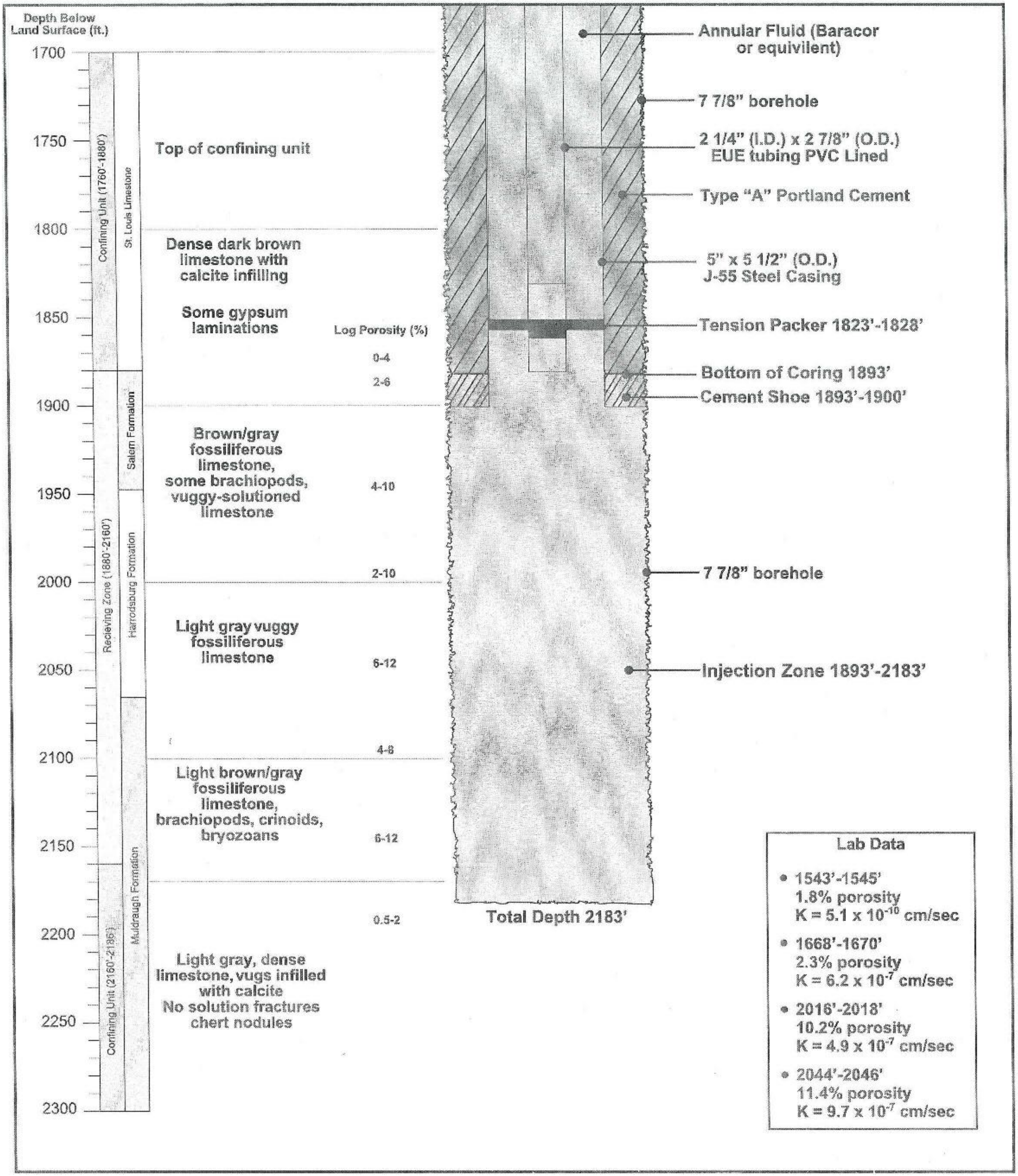
Packer: - Baker AD-1 (top)1818-(bottom)1823 ft

tubing: J-55 5.5 lb/ft, 2.25 in (ID) 2.875 in (OD), PVC liner

static WL -114 ft blsd

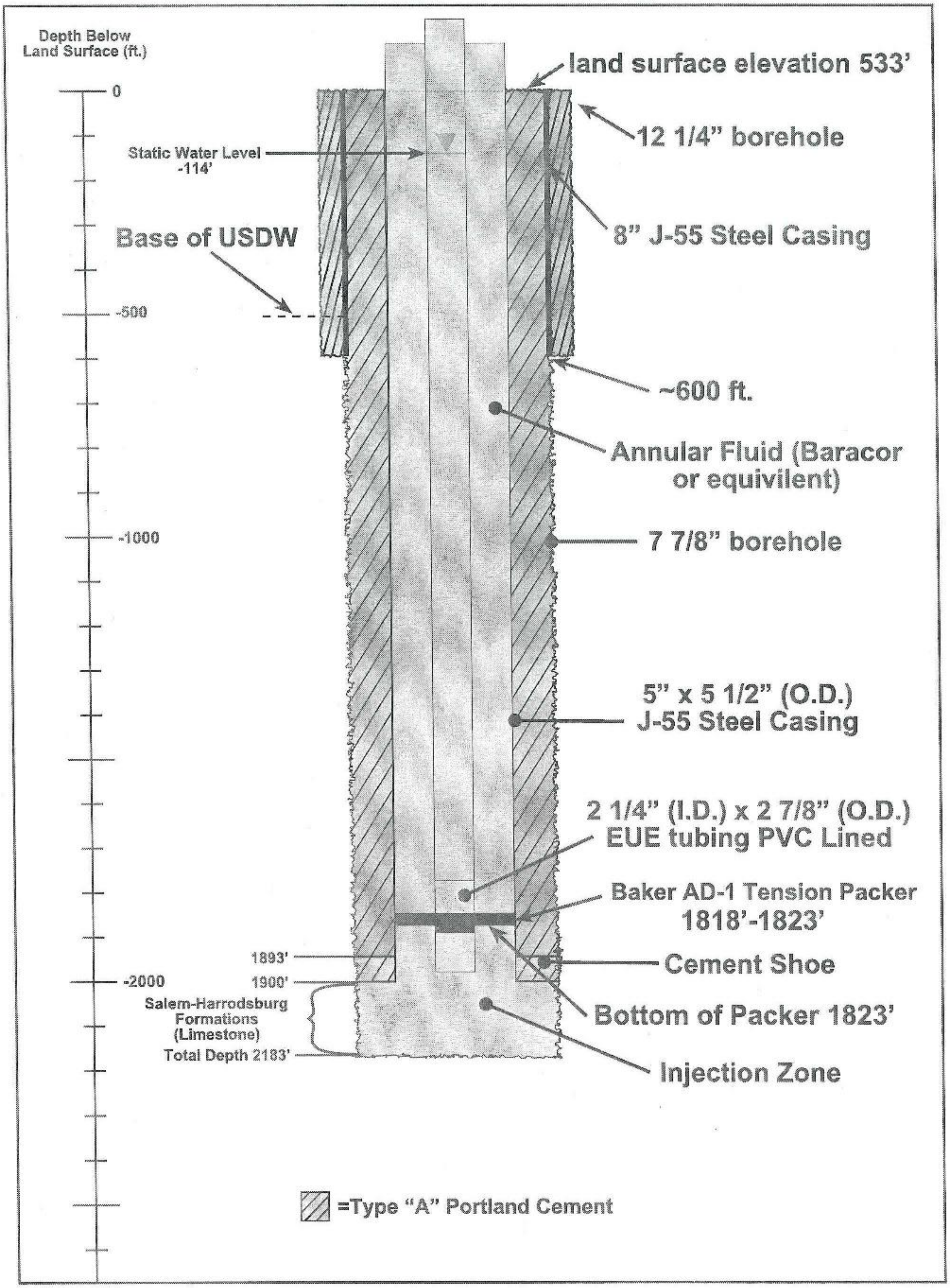
Thomas Kwader, Ph.D., P.G
Senior Principal Consulting Hydrogeologist
Vice President
URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, FL 32317
Tel: (850)-402-6421
Fax: (850)-402-6490
Mobile: (850)-524-9518
E-Mail: Thomas_Kwader@urscorp.com

Scepter, Inc.
Bicknell, IN
Class I Well Injection Well IW-I



Injection Zone Detail

Scepter, Inc.
Bicknell, IN
Class I Well Injection Well IW-I



Class I Injection Well IW-1 As-Built
Completed 12/01/2009

Figure M-1

URS

February 11, 2010

Mr. William Bates
US EPA Region 5
77 W Jackson Blvd.
Mail Code – WU-16J
Chicago, IL 60604-3590

RECEIVED
FEB 12 2010
UIC BRANCH
EPA REGION 5

Subject: Completion Report
Scepter, Inc., Bicknell, Indiana

Dear Mr. Bates:

Referencing your February 9, 2010 e-mail, enclosed is a copy of the completion report.

Please let me know if you have any questions.

Sincerely,

Thomas Kwader

Thomas Kwader Ph.D., P.G.
Technical Consultant
Principal Hydrogeologist

URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, FL 32317
Tel: 850.574.3197
Fax: 850.576.3676

5.3.09

1122 Lombard

Thomas_Kwader@URSCorp.com

07/16/2009 03:35 PM

To

Subject Fw: Scepter Bicknell - Candidate Email to EPA re: Submitter's Comments on Draft Injection Permit

William,

The following is a summary of the items we discussed this morning and our understanding as to the resolution of these issues,

Also attached is the draft Permit with the proposed changes included in the text

I will send you the information about the newspaper and Library contact information

Please send us the guidance document regarding "continuous data collection " and the document addressing "data presentation".

Thanks ,

Tom Kwader

Thomas Kwader, Ph.D., P.G
Senior Principal Consulting Hydrogeologist
Vice President
URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, FL 32317
Tel: (850)-402-6421
Fax: (850)-402-6490
Mobile: (850)-524-9518
E-Mail: Thomas_Kwader@urscorp.com

****

Bill:

The Submitter, Scepter, Inc., has reviewed preliminary draft Injection Permit IN0883110009 and finds it to be well-conceived and prepared. We offer a few edits for your consideration. The attached file provides our recommended changes in 'track changes' mode.

(See attached file: Submitter's Comments on Draft Injection Permit IN083110009_20090716.doc)

A summary of the candidate revisions follows:

Part II(B)(5); page14 . . .

URS

FILE COPY

January 25, 2010

Mona Nemecek
Indiana Department of Natural Resources
IN DNR Div. Oil & Gas
Manager, Technical Services
402 W. Washington St., Rm 293
Indianapolis, IN 46204

Subject: Well Completion Report
Bicknell Class 1 UIC Well
Scepter, Inc., Bicknell, Indiana

Dear Ms. Nemecek:

Attached is the Well Completion Report for the EPA Injection Well at the Scepter, Bicknell, Indiana facility landfill. Also attached are core descriptions and geophysical logs.

If you need anything further, please don't hesitate to call.

Sincerely,

Thomas Kwader

Thomas Kwader Ph.D., P.G.
Technical Consultant
Principal Hydrogeologist

URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, FL 32317
Tel: 850.574.3197
Fax: 850.576.3676

WELL COMPLETION/ RE-COMPLETION REPORT

Form No. R3 (Formerly Form No. R4-8-1991)
Revised on 8/16/1999

DIVISION OF OIL & GAS
DNR

INDIANA DEPARTMENT OF NATURAL RESOURCES
Division of Oil and Gas
402 W. Washington St., Rm. 293
Indianapolis, IN 46204
Phone (317) 232-4055
FAX (317) 232-1550
Internet: http://www.state.in.us/dnroil

Purpose of report

☒ Completion ☐ Re-completion ☐ Conversion

☐ **Check here if you want the completion information to remain confidential for 1 year.**

FOR STATE USE ONLY	
Date filed	Date released

NOTE, Permit began as a test well completed as a EPA Region 5, Class I Non HAZ well

PART I GENERAL INFORMATION

Name of operator	Telephone number	Permit number
Scepter, Inc.	(814)735-2500	54006
Address of operator (☐ Check here if this is a new address) 1485 Scepter Lane		EPA # IN 0883-1I-0009
City: Waverly	State: TN	Zip code: 37185

PART II LOCATION INFORMATION

Name of lease	Well number	Elevation (G.L.)
Scepter, Inc., Bicknell, Indiana	IW-1	

Section	Township	Range	¼	¼	¼	Footage's
12	4N	9W	Irregular		SW	1300 ft. from ☐N, ☐S, ☐NW, ☒SE line; 1750 ft. from ☐E, ☒W, ☐NE, ☐SW line

County	Distance to the nearest well capable of producing from the same formation N/A ft.
Knox	**Note: This information is only required for Oil, Gas and Dual completion wells.**

PART III WELL CONSTRUCTION

NOTE: This information is not required for Geologic/ structure test wells or Individual/ county test holes

Casing Specifications			Cement (In Sacks or Cubic Feet)				Hole	
Casing size O.D. (Inches)	Wt./ ft. (lbs.) - Grade	Setting depth	Stage 1 Volume	Stage 1 Class- yield per sack	Stage 2 or total volume if 1 stage	Stage 2 or total Class- yield per sack	Depth	Diameter (Inches)
Surface 8.62	19 lbs. -J-55	600 ft.		-1.18	280	-	600 ft.	12.25 12.25
Intermed. 0.00	0 lbs. -	NA ft.		-0.00		-0.00	0 ft.	0.00
Long str. 5.50	15 lbs. -J-55	1893 ft.		-1.18	310	- 2183.00 TD	1893 ft. BOC	7.625
Tubing 2.87	5 lbs. - J-55	1823 ft.						

Packer setting depth 1823 ft.
Packer setting depth 0 ft.
Packer setting depth 0 ft.

Centralizers every at 100 ft. ____ ft. ____ ft. ____ ft.

Casing perforated From 0 ft. to 0 ft.
NA, open hole From ____ ft. to ____ ft.
From ____ ft. to ____ ft.
From ____ ft. to ____ ft

NOTE: For Class II Enhanced recovery and Saltwater disposal wells the well construction information must match the specifications of the written permit. If the information is different you must submit form no. A7 to request a modification of the existing permit conditions.

PART IV COMPLETION INFORMATION

Completion type (Check one only) Completed as a Class I Non HAZ Disposal Well

☐ Dry hole
☐ Oil well
☐ Gas well
☐ Non commercial gas well
☐ Gas storage/ observation well
☐ Geologic/ structure test well
☐ Non potable water supply well
☒ Saltwater disposal Class ~~II~~ I well
☐ Enhanced recovery Class II well
☐ Dual completion Oil/ Class II well
☐ Dual completion Gas/ Class II well

Date (Enter one only)		Tools	Total Depths
Completed	12/1/2009		Drillers 2183 ft
Re-completed		Rotary from 0 ft. to 2183 ft	Loggers 2166 ft.
Converted		Cable from ft. to ft.	

IMPORTANT: THIS FORM MUST BE SUBMITTED WITHIN 30 DAYS AFTER THE WELL COMPLETION OR RE-COMPLETION

Continued on next page

PART IV Cont'd.	COMPLETION INFORMATION		
Geophysical Logs	**Completion Intervals**	**Well Treatments**	
(Submit 3 copies of each)	From ft. to ft	Frac. with gallons	Frac. with lbs. sand
Other Neutron	From 1950 ft. to 2170 ft	Frac. with 0 gallons	Frac. with lbs. sand
Other Density	From 1950 ft. to 2170 ft	Acidized with 200 gallons	
Other Resistivity	From 1950 ft. to 2170 ft	Acidized with gallons	
Other Induction	From 1950 ft. to 2170 ft	Shot with quarts	
Producing formation	**Initial production (First 24 hours)**		
Name Other St Louis, SALEM	Oil barrels Gas MCF NA		

PART V	OIL AND GAS OCCURRENCES	
Intervals	**Formation Names/Types**	**Special Test Descriptions (DST's, Pump tests, Fill ups, etc...)**
From ft. to ft	Other NA	Saltwater Disposal Well - Class I
From ft. to ft	Other	
From ft. to ft	Other	

PART VI	FORMATION INFORMATION		
Intervals	**Rock Description**	**Intervals**	**Rock Description**
From ft. to ft	See Attached for Descp.	From ft. to ft	
From ft. to ft		From ft. to ft	
From ft. to ft		From ft. to ft	
From ft. to ft		From ft. to ft	
From ft. to ft		From ft. to ft	
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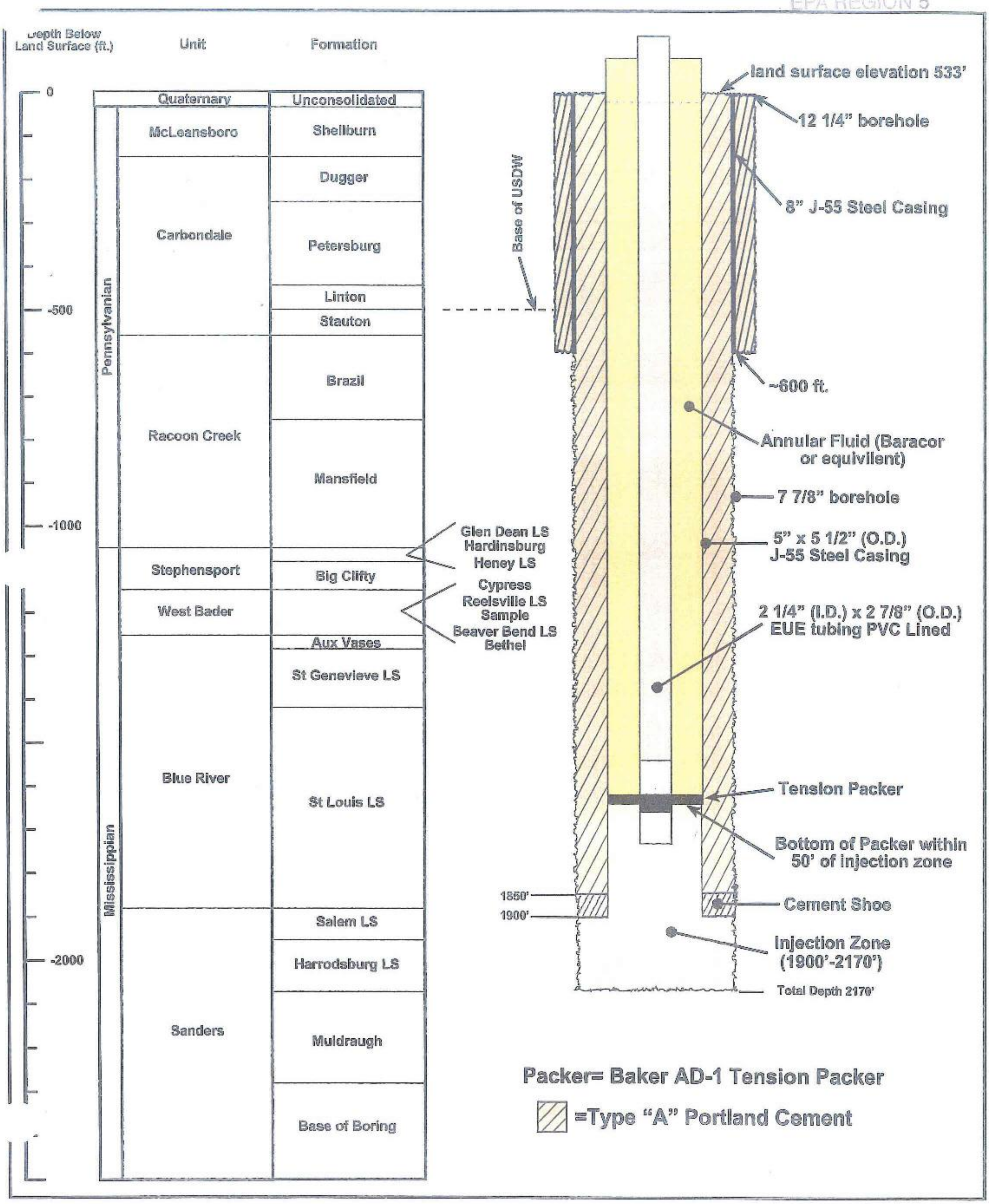
From ft. to ft		From ft. to ft	
From ft. to ft		From ft. to ft	

PART VII	AFFIRMATION
I affirm under penalty of perjury that the information provided in this report is true to the best of my knowledge and belief.	
Signature of operator or authorized agent Thomas Kwader THOMAS KWADER	Date signed 01/18/10

Special Requirements

1. Only those persons whose names appear in PARTS V or VI of the Organizational Report are authorized to sign this report.
2. **If this is a directional or horizontal well you must submit a copy of the directional survey with this report.**
3. **You must submit 3 copies of ALL geophysical logs run on this well.**

Scepter, Inc.
Bicknell, IN
Class I Well Injection Well IW-I



Proposed Class I Injection Well IW-1 Schematic
Based on corehole data

Figure F-2

F.8 Lithology/Stratigraphy of Test Boring - Overview

The proposed injection well location is underlain by approximately 27 feet of unconsolidated Quaternary Age deposits. Bedrock underlying the Quaternary is Pennsylvanian Age deposits. The Shellburn Formation of the McLeansboro Unit is present from approximately 27 to 143 feet below land surface (bls). This formation is made up of fossiliferous shale and sandstone with chert nodules; some limestone is also present.

The Carbondale Unit is found beneath the McLeansboro and is made up of the Dugger Formation, found from 143 to 250 feet bls; the Petersburg Formation, found from 250 to 411 feet bls; and the Linton Formation, found from 411 to 564 feet bls. The Dugger Formation is made up of shale and limestone with several coal beds, and pyrite is abundant in crystals and bands throughout. The Petersburg Formation is made up of fossiliferous limestone and shale, with several coal beds present, and pyrite is abundant as fossil replacement and crystals. The Linton Formation is made up of limestone/dolomite and shale, becoming more fossiliferous with depth. Sandstone with cross-bedding and laminations becomes abundant with depth, and some thin coal beds are present throughout.

The Raccoon Creek Unit is present beneath the Carbondale and is made up of the Staunton Formation, found from 564 to 644 feet bls; the Brazil Formation, found from 644 to 753 feet bls; and the Mansfield Formation, found from 753 to 1,050 feet bls. The Staunton Formation is made up primarily of laminated sandstone, with shale, coal, limestone and dolomite layers throughout. Some chert is present in the limestone. The Brazil Formation is made up primarily of sandstone with laminations and small amounts of limestone, dolomite and shale. Coal is present throughout in thin layers. The Mansfield Formation is primarily made up of sandstone with laminations and fossiliferous shale and limestone. Pyrite nodules and thin (<1/4-inch) coal seams are present near the base of the unit within interbedded sandstone and shale layers.

The Stephensport Unit, of Mississippian Age, is present beneath the Raccoon Creek, and is made up of the Glen Dean Limestone, found from 1,050 to 1,066 feet bls; the Hardinsburg Formation, found from 1,066 to 1,088 feet bls; the Haney Limestone, found from 1,088 to 1,092 feet bls; and the Big Clifty Formation, found from 1,098 to 1,144 feet bls. The Glen Dean Limestone is a massive limestone with solution fractures. The Hardinsburg Formation is made up of sandstone and shale with some coal. The Haney Limestone is a gray/green dolomitic limestone. The Big Clifty Formation is primarily made up of laminated sandstone interbedded with shale.

The West Baden Group is present beneath the Stephensport, and is made up of the Cypress Formation, found from 1,144 to 1,171 feet bls; the Reelsville Limestone, found from 1,171 to 1,174 feet bls; the Sample Formation, found from 1,174 to 1,226 feet bls; the Beaver Bend Limestone, found from 1,226 to 1,253 feet bls; and the Bethel Formation, found from 1,253 to 1,253.8 feet bls. The Cypress Formation is made up of interbedded sandstone and shale with pyrite nodules. The Reelsville Limestone is a green dolomitic limestone with pyrite. The Sample Formation is made up of interbedded sandstone and shale with cross bedding and laminations; some plant fossils are present within the shale. In addition, a 4-foot thick conglomerate is present within the center of the formation. This formation is adequate as a confining unit. The Beaver Bend Limestone is made up of fossiliferous limestone interbedded with green shale. The Bethel Formation is a black shale.

The Blue River Group is present beneath the West Baden Group, and is made up of the Aux Vases Formation, found from 1,253 to 1,273 feet bls; the Saint Genevieve Limestone, found from 1,273 to 1,419 feet bls; and the Saint Louis Limestone, found from 1,419 to 1,879 feet bls. The Aux Vases Formation is made up of green and red dolomite and limestone with chert nodules throughout. The Saint Genevieve Limestone is made up of fossiliferous, micritic and oolitic limestone. There is an abundance of solution fracturing and large calcite crystals and veins. The Saint Louis Limestone is made up of fossiliferous and micritic limestone. There is an abundance of solution fracturing and large calcite crystals and veins and abundant gypsum layers are present near the base of the unit.

The Sanders Group is present beneath the West Baden Group, and is made up of the Salem Limestone, found from 1,879 to 1,949 feet bls; the Harrodsburg Limestone, found from 1,949 to 2,074 feet bls; and the Muldraugh Formation, found from 2,074 to the base of the test boring at 2,285 feet bls. The Salem Limestone is made up of fossiliferous limestone with some calcite replacement of the fossils and minimal solution fracturing. The Harrodsburg Formation is made up of porous and vuggy fossiliferous limestone. The Muldraugh Formation is made up of fossiliferous and micritic limestone that is porous, with minimal fracturing of the formation matrix. A hard chert fractured layer was encountered at the base of the test hole. The Sanders Group is a highly productive interval for injection purposes. A more detailed site-specific stratigraphic log based on the core hole is shown on **Figure F-2**. Photographs of the coring activities are shown in **Appendix J**.

By: Ms. Margaret Gilliland, Licensed Professional Geologist (LPG), # 2221, Indiana, URS Corporation.

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
0	27	Unconsolidated			Quaternary
27	61	Gray, Shale, brachiopod fossils, finely laminated.	Shellburn	McLeansboro	Pennsylvanian
60	70	Black, Shale, small brachiopods, finely laminated			
70	103	Gray, Limestone, micritic			
103	143	Light Gray, Sandstone, Dark Laminae, 133 concretions, ~136-137.5, Dark Gray Shale. 141.5-143. Thicker Laminae, Grades to light tan.			
143	148	Medium Gray, Limestone w/ concretions	Dugger	Carbondale	
148	150	Medium Gray, Shale			
150	152	Medium Gray, Limestone			
152	155	Dark Gray Shale w/ Pyrite			
155	156.5	Black Coal w/ Pyrite			
156.5	162	Medium Gray, Limestone, w/ Pyrite near surface, laminae			
162	207	Light Gray, fine grained Sandstone, dark laminae			
207	208	Medium Gray, Limestone			
208	211	Black Coal w/ Pyrite			
211	221	Medium Gray, Dolomite			
221	237	Interbedded Light Gray, Limestone and Sandstone			
237	244	Medium Gray grading to Dark Gray, Shale			
244	250	Black, Shale, Thick Pyrite bands			
250	251	Medium Gray, Limestone	Petersburg		
251	254.5	Medium to Dark Gray Shale, some trace fossils (burrows) near surface of layer			
254.5	257	Black Coal w/ Pyrite			
257	261	Medium Gray, Dolomite			
261	272	Medium Gray, Limestone			
272	273.5	Medium Gray, Dolomite, Limestone			
273.5	277	Light to Medium Gray, Fossiliferous Limestone, massive (brachiopods) pyrite			
277	303	Medium to Dark Gray, Shale, ~278 brachiopod fossils and coal chunks, leaf fossils, laminated, pyrite			
303	307	Black Coal w/ Pyrite			
307	309	Medium Gray Limestone, with Pyrite, fossiliferous			
309	310	Light Gray Sandstone, medium to course grained			
310	313.5	Medium Gray Limestone			
313.5	315	Interbedded Medium Gray Sandstone and Limestone, laminated			
315	325.5	Medium Gray Shale, laminated, pyritized, fossils			
325.5	326.5	Medium Gray Fossiliferous Limestone			
326.5	331	Medium Gray Shale			
331	332	Medium to Light Gray Limestone			
332	334	Black to Dark Gray Shale, trace fossils near surface			
334	341	Grading into Black Coal			
341	343	Light Gray Dolomite			
343	355.5	Grading into Light Gray Limestone			
355.5	411	Light Gray Sandstone, fine to coarse grained, dark laminations to ~371, 376-382, 406-411			
411	422	Medium Gray Shale, ~420 Grading to Black,	Linton		
422	423	Dark Gray to Black Sandstone, medium grained			
423	426.5	Black Shale			
426.5	429	Black Coal			
429	434.5	Medium Gray Limestone hard, ~434.5 grading to Dolomite			
434.5	438	Dark Gray Dolomite			
438	442	Medium Gray Limestone			
442	443.5	Medium Gray Dolomite			
443.5	444	Dark Gray Shale			
444	445	Black Coal			

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
445	447	Dark Gray Dolomite ~446 becoming interbedded with Shale	Linton (con't)	Carbondale (con't)	Pennsylvanian (con't)
447	455	Light Gray to Tan fine grained Sandstone, cross bedding			
455	461	Gray to Medium Gray Shale, interbedded with Sandstone			
461	479	Medium Gray Shale, pyritized fossils, bivalves and brachiopods			
479	487	Dark Gray Shale, some trace fossils throughout ~484 chert nodule			
487	488	Black Coal			
488	496	Highly fractured underclay/Medium Gray Limestone			
496	498	Dark Gray to Black Shale			
498	501.5	Black Coal			
501.5	504.5	Dark Gray to Black Dolomite, interbedded with Shale of same color			
504.5	505.5	Black Coal			
505.5	508	Medium Gray Dolomite			
508	510	Grading to Limestone			
510	513	Tan to Light Gray Sandstone medium grained			
513	524	Medium Gray Limestone with some Dolomite beds near the surface			
524	564	Light Gray to Tan medium grained Sandstone, thin dark laminae, some <0.25 coal seams, 535-543 cross bedding			
564	568	Black Shale	Staunton	Raccoon Creek	
568	570	Black Coal			
570	577	Dark Gray Dolomite			
577	578	Black Coal w/ Pyrite			
578	601	Dark Gray grading to Light Gray at 580, medium to course Sandstone, ~588-590 several ~1' coal seams			
601	604	Medium to Dark Gray Dolomite			
604	605	Medium Gray Shale			
605	607	Medium Gray Dolomite			
607	609	Medium Gray Shale			
609	615	Medium Gray Limestone with nodules / concretions			
615	616	Black Shale			
616	618	Dark Gray Limestone with abundant bivalve fossils			
618	629	Interbedded Sandstone, Shale in thin layers, Shale Dark Gray, Sandstone Light Gray, 626 becoming primarily Shale			
629	636	Light Gray Sandstone, fine to medium grained, ~633 dark laminae (shale)			
636	644	Grading to primarily Dark Gray Shale, with Light Gray Sandstone laminations			
644	731	Light Gray Sandstone, fine to medium grained, 645-648 becoming laminated with ~1/4' Shale layers, 650.5 ~3" thick shale layer, 660 becoming more course grained, no laminations, 660.5-661 Dark Gray Dolomite, 661 fine to course grained, 695 dark laminations appear, 715 ~1' thick coal seam, 719 ~1' thick coal seam, ~722 dark laminations end	Brazil		
731	733	Conglomerate			
733	735	Medium Gray Limestone, hard			
735	745	Medium Gray Dolomite with pyrite			
745	745.5	Black Shale			
745.5	746	Black Coal			
746	750	Dark Gray Limestone, small fossils			
750	753	Light Gray Dolomite			

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
753	795	Dark Gray Shale, 786 Light Gray / Tan ~1/4" Sandstone Layer	Mansfield	Raccoon Creek (con't)	Pennsylvanian (con't)
795	796	Light to Medium Gray oolitic Limestone			
796	805	Dark Gray Shale, brachiopod fossils, 798 becoming laminated			
805	880	Light Gray Sandstone, medium to course grained, laminated with Dark Gray Shale, 813 becoming Medium Gray with light Gray laminations, 817 light Gray /tan Sandstone, fine to medium grained, 833-836 dark laminations, 841-843 dark laminations, 847-854 very finely laminated, 858-863 light with dark clasts - no structure, 836-877 highly laminated dark and light Gray all layers less than 1/4 inch, 877-880 Light Gray with thin dark lamination			
880	894	Dark Gray Sandstone with thin light laminations			
894	905	Tan Sandstone, fine to medium grained			
905	950	Light Tan Sandstone, medium to course grained, 907 thin Dark Gray Shale, 920-950 laminations			
950	996	Black Shale, laminated			
996	1015	Interbedded Light Gray / Tan Sandstone, with Shale, some fossils in the Shale, some <1/4 inch coal seams			
1015	1037	Medium Gray Shale, massive, 1025 becoming fossiliferous, plant fossils and pyrite nodules, more finely laminated grading to darker Gray, brittle			
1037	1041	Interbedded Dark Gray Shale and Medium Gray Sandstone. Fine grained			
1041	1049	Light Gray fine to medium grained Sandstone, with intermittant Medium Gray Shale beds, 1045 becoming more course grained, ~1048 1.5" thick Black Shale,			
1049	1050	Light Gray conglomerate			
1050	1050.02	1" thick Green Shale, 1" thick Black Shale			
1050.02	1066	Light Gray Limestone, solution fractures	Glen Dean Limestone	Stephensport	Mississippian
1066	1074	Medium Gray Sandstone ~1'. Light Gray Sandstone with Dark and Medium Gray laminations	Hardinsburg		
1074	1077	Black Shale, grading to coal			
1077	1088	Light Gray Sandstone, medium to course grained, with medium and dark Gray laminations			
1088	1092	Thin pyrite layer on surface, Medium Gray / Green Dolomite, weathered (underclay)	Haney Limestone		
1092	1098	Tan fine to medium grained Sandstone, 1095 becoming laminated, 1096 interbedded Dark Gray Shale	Big Clifty		
1098	1114	Brown fine to medium grained Sandstone			
1114	1115.5	Brown fine to medium grained Sandstone Interbedded with Dark Gray Shale			
1115.5	1144	Light Brown fine to medium grained Sandstone, some dark laminations throughout, 1130 fine to medium grained Light Tan Sandstone, 1131-1144 interbedded with Dark Gray Shale			
1144	1152	Light Gray / Tan, fine to medium grained Sandstone, interbedded with thin Shale layers, pyrite nodules, 1149-1152 becoming more Sandstone	Cypress	West Baden	
1152	1165	Dark Gray Shale with abundant thin light, fine grained Sandstone layers.			
1165	1171.5	Light Gray / Tan, fine to Medium grained Sandstone.			
1171.5	1174	Green Dolomite with pyrite	Reelsville LS		

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
1174	1184	Grading to Gray Shale, 1118 becoming interbedded with light Sandstone, 1181 becoming primarily Sandstone with Shale interbeds	Sample	West Baden (con't)	Mississippian (con't)
1184	1198	~2" thick conglomerate, Light Gray fine to medium grained Sandstone, wavy undulation, cross bedding, 1192 laminations and depositional features no longer present.			
1198	1202	Light Gray conglomerate, some thin layers of fine grained Sandstone			
1202	1226	Medium to Dark Gray Shale, more consolidated, not as fragile, some plant fossils			
1226	1236	Dark Gray Limestone, 1232-1233 thick fossiliferous (brachiopod) layer	Beaver Bend LS		
1236	1253	Interbedded greenish Gray shale, Light Gray Limestone, thin layers			
1253	1253.8	Black Shale	Bethel		
1253.8	1273.5	Green Dolomite with large pyrite crystals, ~1256 becoming red and green with small to large chert nodules, 1263-1263.5 Green Limestone, 1263.5 becoming mostly red with some green, more chert nodules present, 1269 becoming all green, chert still abundant	Aux Vases	Blue River	
1273.5	1327	Light Gray to White Sandstone, dark laminations to 1288, 1291-2 laminated, 1299 cross bedding and laminations present	St Genevieve LS		
1327	1343	Medium Gray Sandstone with dark laminations, 1335 grading to light Gray			
1343	1346	Interbedded dark Gray/black shale with thin sandstone layers, shale contains pyrite			
1346	1351	Dark Gray Shale, fossiliferous (leaves and brachiopods)			
1351	1351.6	4" layer of fossiliferous Limestone, 3" layer of black Shale with brachiopod fossils			
1351.6	1355	Green Dolomite, 1353 grading into dark green, 1354.5 grading into dark Gray			
1355	1355.5	Dark Gray Shale, brachiopod fossils			
1355.5	1356.5	Dark Gray Limestone			
1356.5	1357	Light Gray Limestone interbedded with green shale			
1357	1359.5	Green Dolomite with red streaks within, rip-up clasts at base			
1359.5	1365	Medium Gray Limestone, 1361 solution fractures with calcite crystals present, 1364 Ooids ~2" thick layer			
1365	1366	Gray/red/green shale			
1366	1369	Light Gray Limestone interbedded with green Shale			
1369	1370.5	Interbedded red and green Shale			
1370.5	1371	Interbedded light Gray Limestone and green Shale, Ooids present in Limestone			
1371	1378	Light Gray Limestone, fossiliferous, large calcite crystals, some solution fracturing			
1378	1382	Becoming Interbedded with medium Gray Micritic Limestone for ~6", then all micritic Limestone			
1382	1396	Medium Gray Fossiliferous Limestone, brachiopods, 1391-1393 rip-up clasts			
1396	1398	Green Limestone with white Limestone rip-up clasts			
1398	1408	Medium Gray calcareous Sandstone with some Dark Gray laminations, some calcite veins			
1408	1414	4" dark Gray/green Shale with rip-up clasts, Light Gray/white Limestone with thin ~1/4" green shale layers ~ every 1', Terminating with 1.5" of dark Gray Shale			
1419	1419	Tan Sandstone			

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
1419	1451	Light Gray Micritic Limestone, calcite crystals throughout, large broken solution fractures present at 1429, 1432, 1334.5, 1338, 1341, 1344, and 1345, 1349-1351 thin unbroken solution fractures abundant	St Louis LS	Blue River (con't)	Mississippian (con't)
1451	1453	Medium Gray fossiliferous Limestone, brachiopods			
1453	1458	Light Gray Micritic Limestone			
1458	1463	Light Gray Fossiliferous Limestone, brachiopods			
1463	1465.5	Green Dolomite ~6" then grading into medium Gray, pyrite veins throughout			
1465.5	1473	Light Gray Limestone, abundant unbroken solution fractures			
1473	1483	Light Gray/Tan granular Limestone, no solution fractures			
1483	1485	Tan Dolomite w/ 1/4" black Shale at base			
1485	1487	Light Gray Limestone			
1487	1494	Tan Dolomite			
1494	1500	Light Gray Limestone, abundant thin solution fractures 1497 Large solution fractures with calcite crystals			
1500	1502	Tan Dolomite			
1502	1519	Light Gray Limestone, large solution fractures filled with calcite crystals 1503, 1509, 1509.5, 1511 some smaller unbroken fractures throughout			
1519	1520	Tan Dolomite			
1520	1524	Light Gray Limestone			
1524	1528	Tan Dolomite with large white Limestone, last @ 1527			
1528	1552	Light Gray Limestone nodules to 1532 1535 large 2" solution fracture filled with calcite crystals 1545 some nodules to 1551, some small solution fractures			
1552	1555	Medium Gray Limestone, sparse brach fossils			
1555	1557	Light Tan Limestone			
1557	1561	Light Gray fossiliferous Limestone 1560 ~1" thick solution fracture with large calcite crystal			
1561	1683	Light Gray Limestone, abundant large and small solution fractures 1604-1605.5 Light Gray Sandstone 1618 1" thick Dark Gray lamination 1626 becoming Medium Gray 1628 thick calcite veins throughout 1643 becoming Light Gray, calcite veins still apparent			
1683	1690	Tan calcareous Sandstone, Medium Gray			
1690	1697	Light Gray Limestone, abundant thin solution fractures			
1697	1700	Tan Dolomite, Dark Gray at base ~2"			
1700	1725	Light Gray Limestone 1707 1" thick Shale 1710 becoming Tan 1720-1723 Dark Tan, vuggy			
1725	1738	Tan Limestone, large 3" concretions, calcite nodules			
1738	1764	Tan Limestone, solution fracturing 1743 - 1754 dark laminations, limited solution fractures			
1764	1826	Brown Limestone, large calcite crystals 1788 dark laminations, becoming Light Brown 1800 6" Dark Shale 1820 ~1' thick calcite crystals			
1826	1849	Light Gray Dolomite and calcite (~50% mix)			
1849	1879	Light Gray Limestone 1853.5 ~1/2" Gypsum Layer 1858 ~ 1/2' Gypsum layer 1859.5 ~ 1/2" Gypsum layer 1859 - 1863 mottled Gypsum and Limestone 1864 1/2" Gypsum layer 1872 1.5" Gypsum layer 1874 ~1" Gypsum 1874.5 ~1" Gypsum layer			
1879	1949	Brown/Gray fossiliferous Limestone, brachiopods and some calcite replacement, minimal solution fracturing	Salem Limestone	Sanders	

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
1949	1965	Dark Brown Limestone coral fossils - bryozoans	Harrodsburg Limestone	Sanders (con't)	Mississippian (con't)
1965	1989	Light Gray fossiliferous Limestone, solution fractures (1967, 1969, 1974), crushed fossiles and crinoids, calcite replacement some as big as 1"			
1989	1999	Brown Limestone, bryozoans and brachiopods			
1999	2004	Light Gray Limestone, vuggy			
2012	2030	Medium Gray Limestone, porous, fossiliferous			
2030	2041	Light Gray Limestone, fossiliferous - brachiopods, solution fractures			
2041	2047	Medium Gray Limestone, fossiliferous, porous, crushed fossils			
2047	2051	Light Gray Limestone, calcite crystals throughout, solution fracturing, fossiliferous			
2051	2064	Light Gray (yellowish tint) Limestone, bryozoans fossils packed			
2064	2074	Light Gray (yellowish tint) Limestone, bryozoans fossils packed, solution fractures and calcite crystals			
2074	2120	Light Gray Limestone, some brach fossils, vuggy 2074 - 2076 solution fractures 2077-2080 becoming laminated 2081-2083 vuggy Light Brown, no solution fractures 2084.5-2089 Vuggy, small to large (1.25") brachiopods, more abundant, Light Brown 2089 - 2092 Medium Gray Limestone, solution fractures, less fossils, calcite crystals 2092-2094 Vuggy, small to large (1.25") brachiopods, more abundant, Light Brown 2094-2012 Light Gray Limestone, crinoid and brachiopod fossils, large calcite crystals, solution fractures, some lamination 2100-2105 2012-2120 sparse brachiopod fossils, smaller calcite crystals	Muldraugh		
2120	2125	Light Brown Limestone, bryozoans and brachiopod fossils, slightly porous, grading to Medium Gray ~2123			
2125	2132	Light Gray Limestone, solution fractures, some braciopod fossils			
2132	2143.5	Medium Gray, micritic Limestone, laminated solution fractures 2139 large hollow with calcite crystals			
2143.5	2158	Medium Gray/Brown fossiliferous Limestone, bryozoans and brachiopods (packed), calcite crystals, porous			
2158	2161	Light Gray Limestone, crinoid stems, large brachiopods, solution fractures			
2161	2175	Medium Gray micritic Limestone, laminated, solution fractures			
2175	2253	Medium Gray micritic Limestone, laminated solution fractures, calcite seams and nodules, no solution fractures 2195 very brittle 2248 very brittle			
2253	2270	Medium Gray Limestone, sparse brachiopod fossils, pyritized fossils, calcite crystallization, fossils becoming more abundant at 2256'			
2270	2285	Medium Gray, micritic Limestone, Dark Gray cherty nodules and layers, laminated			
		End of Test Hole			

Submitter's Comments on Draft Injection Permit IN0831I0009_20090716.doc

Scepter, Inc.

October 8, 2008

Ms. Lisa Perenchio
U.S. EPA Region 5
Mail Code – WU-16J
77 West Jackson Boulevard
Chicago, IL 60604-3590

Subject: Permit Application for Class I, Non-Hazardous Waste Underground Injection Well Permit, Scepter, Inc., Bicknell, Indiana

Dear Ms. Perenchio:

Scepter, Inc., (Scepter) respectfully submits the enclosed Application for a Class I Non-Hazardous Waste Injection Well located near Bicknell, Knox County, Indiana. Scepter has operated an aluminum recycling facility at Bicknell since 1987. During the recycling process a solid waste, composed primarily of salts, is generated and disposed of at a nearby permitted landfill operated by Scepter. Currently, the brine leachate from that portion of the landfill is collected and transported off-site to either an injection well for disposal or to Scepter's aluminum recycling facility for use as evaporative cooling liquid in the furnace exhaust gases. Because of the ever increasing cost of transportation and disposal, Scepter has conducted a series of feasibility studies since 1997 to assess disposal of the waste through an on-site injection well. Based on these studies, on-site injection appears to be economically and technically feasible.

Scepter proposes to construct an injection well similar to other Class II wells in the area which are disposing of similar brine wastewaters into carbonate formations well beneath the local underground source of drinking water (USDW). Currently, Scepter is drilling a continuous core hole (Stratigraphic Permit IN #53616) to identify the base of the USDW and the water quality characteristics of the geologic confining unit and potential receiving zones beneath the site.

Scepter looks forward to working with the EPA to provide any information you may need to process the Application in a timely manner.

If you have any questions, please feel free to contact me, or contact our technical consultant directly at the location indicated below.

Sincerely,

Garney B. Scott III

Garney B. Scott, III
President

Enclosures

Technical Consultant:

Thomas Kwader Ph.D., P.G.
Principal Hydrogeologist
URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, Florida 32317
Tel: (850) 574-3197 ext. 421
E-mail: Thomas_Kwader@urscorp.com

FINAL REPORT

APPLICATION FOR CLASS I, NON-HAZARDOUS UNDERGROUND INJECTION WELL PERMIT

Scepter, Inc.
6467 N. Scepter Road
Bicknell, Indiana 47512

Prepared for
U.S. Environmental Protection Agency
Region 5
UIC Branch (WU-16J)
77 W. Jackson Blvd.
Chicago, Illinois 60604-3590

October 10, 2008

URS

URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317
and
URS Corporation
One Indiana Square, Suite 2100
Indianapolis, Indiana 46204

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EPA Class I Non-Hazardous Injection Well Permit Application
Scepter, Inc.
Bicknell, Indiana

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wells), (2) The injection zone (non-hazardous waste wells) or injection interval (hazardous waste wells), and (3) The containment interval (hazardous waste wells only)

I.3 Cores and laboratory core testing for confining and injection zones (For non-hazardous waste wells, a minimum of one 30-foot core of the confining zone and one 30-foot core of the injection zone are required). For hazardous waste wells where injection of restricted wastes is proposed, one or more cores of the containment interval will also be necessary

I.4 Determination of fracture closure pressure of injection zone (non-hazardous wells) or injection interval (hazardous wells)

I.5 Injectivity/fall-off testing of injection zone/interval, including interference testing if multiple wells are proposed

I.6* Depth to Lowermost USDW - Water Quality Samples – Field and Laboratory Results

I.7* Geotechnical Laboratory Results of Selected Core Intervals

I.8* Hook-Wall Injection Packer Testing

I.9* Borehole Geophysical Log Data Interpretation

I.10* Calculated Area of Influence (AOI) for Various Injection Rates

Attachment J. Stimulation Program

J.1 Class I wells are not recommended in areas where fracture stimulation will be necessary. If it is proposed, procedures should be included in the permit application which show how the operator proposes to confine fractures to the injection formation. If acid or other type of stimulation is proposed, procedures should also be included in the permit application under this section.

Attachment K. Injection Procedures

K.1 Plant plan showing flow line of waste stream(s) to be injected

K.2 Description of filters, storage tanks (including capacity), and any pretreatment processes and facilities, including location on plant plan

K.3 Description of injection pumps, including rate capacity

K.4 Description of annulus pressure maintenance system

K.5 Description of alarm and shut-off system

Attachment L. Construction Procedures

L.1 Detailed well construction procedures

L.2 Estimated time table for drilling, logging and formation testing

L.3* Proposed open-hole and cased hole geophysical logs

L.4* Proposed mechanical testing (cement bond logs, radioactive tracer log, and temperature, noise or oxygen activation log are required prior to injection of waste)

L.5* Proposed buffer fluid and volume, if any.

Attachment U. Description of Business

- U.1 Briefly describe the nature of the business and list up to four SIC codes which best reflect the principal products or services provided by the facility.
- U.2 For existing wells, list the highest injection pressure in use in this well since construction and the approximate dates of injection near that pressure.
- U.3 List of prior releases of waste through injection wells at this facility to intervals other than that proposed in this permit application.
- U.4 All applicable RCRA waste codes for listed an characteristic wastes proposed for injection in this well.
- U.5 All applicable Land Disposal Restriction deadlines or "ban dates."
- U.6 Proposed schedule for submittal of exemption petition, if waste is restricted from land disposal.
- U.7 Additional testing proposed to support the exemption petition.
- U.8 Future plans for waste minimization and a certified statement which meets the requirements of 40 CFR 146.70(d).

EPA Class I Non-Hazardous Injection Well Permit Application
Scepter, Inc.
Bicknell, Indiana

LIST OF TABLES, FORMS, FIGURES AND APPENDICES

TABLES

FORMS

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APPENDICES

Bold * = New Table, Figure or Appendices as of January 2009, from data obtained from on-site core hole, September – November 2008.

EPA Class I Non-Hazardous Injection Well Permit Application
Scepter, Inc.
Bicknell, Indiana

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EPA REGION 5

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INTRODUCTION

Overview of Application for a Retricted Type I Non-Hazardous Waste Underground Injection Well Permit, Scepter, Inc., Bicknell, Indiana

Scepter, Inc. has been operating a scrap aluminum recycling facility near Bicknell, Indiana since 1987 and started operation of the landfill in 1996. During the recycling process various materials added during the process remain in the waste stream, including salts and impurities, as solids, which are disposed in the landfill located approximately 3 miles northwest of the manufacturing facility (**Figure 1**). The landfill is permitted as a non-hazardous facility by the State of Indiana.

Leachate generated from rainfall at the landfill has been disposed off-site since the start-up of the landfill. The leachate is currently either being used as evaporative cooling water at Scepter's recycling facility or is be hauled to a commercial injection well in Ohio. The volume of leachate varies annually, depending primarily upon rainfall, however the volume is typically has been 1 to 1.5 million gallons per year; however, for 2008 it will more than likely approach 2 million gallons. Due to rising cost of leachate disposal, Scepter is exploring the feasibility of on-site, deep well injection.

Scepter began exploring the feasibility of on-site, deep well disposal in 1997. Reports addressing the permitting, economic and geologic feasibility were compiled by Envirocorp (1997) and are contained in Appendix A and B. The conclusions by Environcorp indicated that there was a good probability of a geologic formation capable of receiving the proposed volume of waste in the vicinity of the site. Although no deep geologic logs are available near the landfill the regional geology data indicate prospective zones at 1500 feet to 3000 feet below land surface (533 feet above sea level). These prospective zones are below the local drinking water aquifers (USDW's), separated hydrologically by low permeability carbonates and shales that contain total dissolved solids (TDS) in excess of 10,000 milligrams per liter (mg/L).

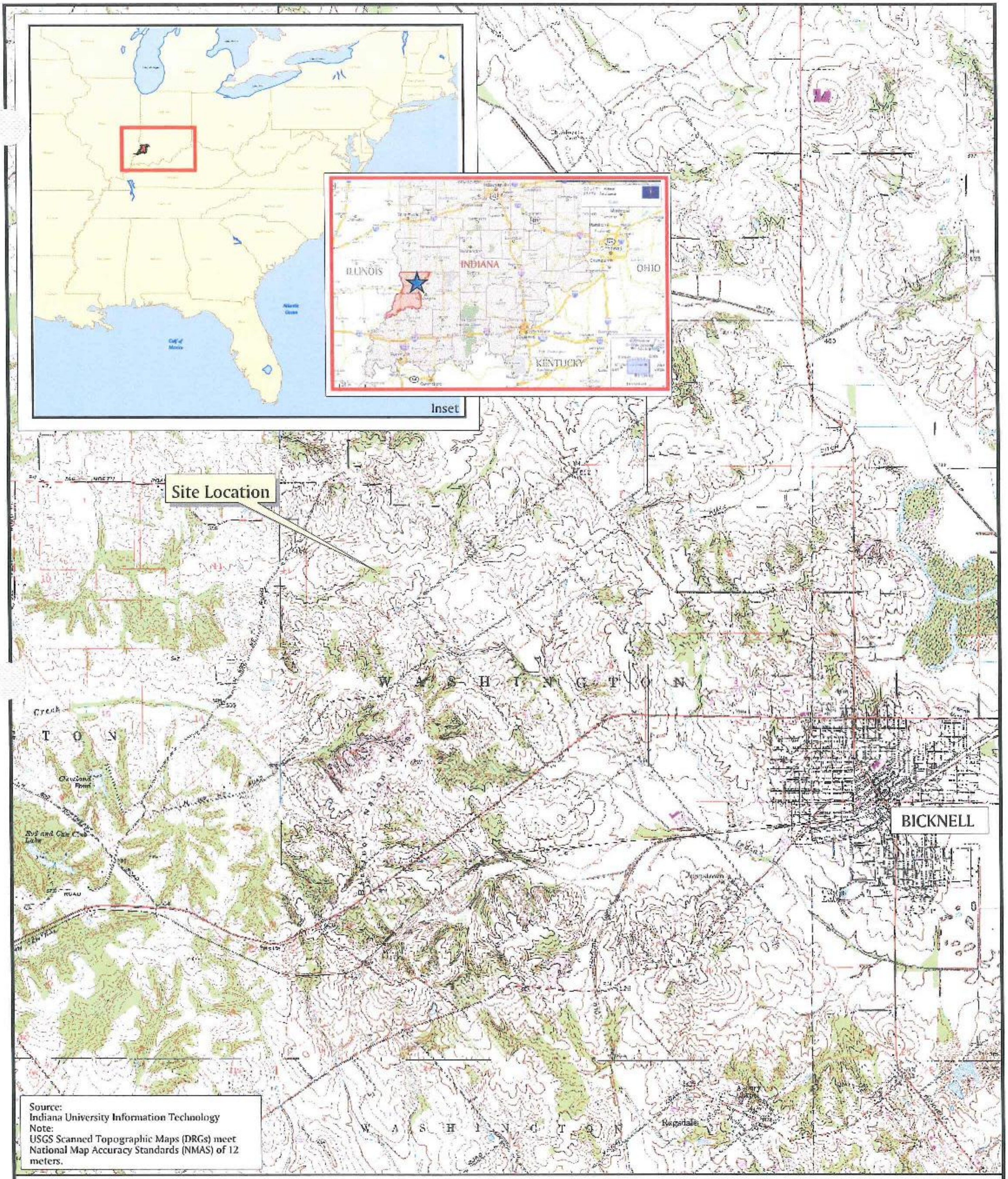
This area of southwest Indiana has significant petroleum production, including, approximately, 500 active wells in Knox County, the home of Scepter, Inc. Bicknell, Indiana. Information obtained from decades of drilling in the area indicate extensive oil and gas production occurs in geologic formations of the Illinois Basin, ranging in age from Devonian to Pennsylvanian Age, which lie approximately 800 to 3000 feet below the landfill with the most productive zones in the 1500 to 2500 foot range. The tops of these formations generally dip towards the west-southwest.

Although there are relatively few Class I (municipal or industrial) Underground Injection Control (UIC) wells in this area, there are numerous Class II UIC wells disposing of brine waste waters (>1168 Class II in a 10 county area, including 43 in Knox County) associated with the production of oil and gas wells in Illinois Geologic Basin. These wells typically dispose of brine wastes up to 400 barrels per day (BBL's/d or approximately 16,800 gallons per day) at well head pressures ranging from 0 (free falling) to more than 400 pounds per square inch (psi). These Class II wells, regulated by the State of Indiana (delegated Primacy for this class), are constructed with a retrievable tubing and packer system with a monitored fluid filled annular space, similar to the requirements of the U.S. EPA Class I non-hazardous waste wells.

This Class I Permit Application for Scepter Inc., is being submitted based upon the best available data at the time for the proposed location at the Scepter facility landfill, Knox County, Indiana. In order to better define the geologic data submitted in this permit, a continuous diamond corehole was begun on September 10th, 2008 under State of Indiana, Stratigraphic Test Hole Permit # 53616, issued August 8, 2008. The continuous diamond core is being drilled by the Boart-Longyear Company, from Wyethville, Virginia. The core will be used to determine the base of the confining beds comprising the USDW, obtain water quality samples below the lowermost confining unit of the USDW conduct permeability tests and determine the thickness of the confining unit(s) of the USDW aquifers, including, at least, a 20 foot continuous core of the lower confining unit for geotechnical laboratory testing.

Once the base of the USDW is defined a suitable injection zone will be sought to complete the proposed Class I well. The injection zone will be identified by a number of methods including, loss of mud while drilling, physical observation of the porosity in the core, straddle packer testing of selected zones or hook wall packer testing of the open corehole, beginning at the bottom of the core proceeding upwards in 10 to 40 foot intervals as appropriate, while recording injection volumes and pressures. Borehole geophysical logs will also be conducted on uncased portions of the borehole using; resistivity, caliper, natural gamma, temperature, and possibly acoustic televiewer logs.

This site specific corehole data will be used to determine if adequate confining units and an injection zone(s) is present to proceed with a final well design for the anticipated volumes required to be deemed a feasible project. This data will be incorporated into a revised Attachments L and M, projected to be sent to EPA by mid November-early December, (well) Construction Procedures as specified in CFR 146.12.



Source:
Indiana University Information Technology
Note:
USGS Scanned Topographic Maps (DRGs) meet National Map Accuracy Standards (NMAS) of 12 meters.

N

0.6 0 0.6 1.2 Miles

1:50000

SCEPTER INJECTION WELL SITE AT BICKNELL INDIANA LANDFILL

URS

Projection:
Universal Transverse Mercator, NAD83, Meters
B. Norman -Tallahassee
9/24/08
G:\figure1s\Bicknell\SiteLocation.apr

SITE LOCATION & VICINITY MAP

Project No. 20500022

Introduction: Figure 1

OMB No. 2040-0042 Approval Expires 4/30/07

EPA

United States Environmental Protection Agency

Underground Injection Control Permit Application

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		T/A	C
	IN-083-1I-0009		
U			

Read Attached Instructions Before Starting

For Official Use Only

Application approved (mo day year)	Date received (mo day year)	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			
Owner Name: Scepter, Inc (Garney B. Scott III)			
Street Address: 1485 Scepter Lane		Phone Number: (931) 535-3565	
City: Waverly	State: TN	ZIP CODE: 37185	

III. Operator Name and Address			
Owner Name: Scepter, Inc.			
Street Address: 6467 N. Scepter Road		Phone Number: (812) 735-2500	
City: Bicknell	State: IN	ZIP CODE: 47512	

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
[x] Yes [ ] No	[x] Private [ ] Federal [ ] Other	[x] Owner [ ] Operator	3341

VIII. Well Status *(Mark "x")*

[ ] A. Operating	Date Started (mo day year)	[ ] B. Modification/Conversion	[x] C. Proposed

IX. Type of Permit Requested *(Mark "x" and specify if required)*

	Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s)
[x] A. Individual [ ] B. Area	0	1	Scepter, Bicknell, Indiana

X. Class and Type of Well *(see reverse)*

A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
I	"I"	N/A	N/A

XI. Location of Well(s) or Approximate Center of Field or Project

Latitude			Longitude			Township and Range							
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
38	47	27.8	87	21	56.8	12	4-N	9W	SW	1300	SE	1750	W

XII. Indian Lands (Mark 'x')

[ ] Yes
[x] No

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title *(Type or Print)*	B. Phone No. *(Area Code and No.)*
Garney B. Scott III, President, Scepter, Inc.	(931) 535-3565
C. Signature: Garney B. Scott III	D. Date Signed: 2/5/09

EPA Form 7520-6 (Rev. 8-01)

OMB No. 2040-0042 Approval Expires 4/30/07

EPA

United States Environmental Protection Agency

Underground Injection Control Permit Application

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number

	T/A	C
U		

Read Attached Instructions Before Starting

For Official Use Only

Application approved (mo day year)	Date received (mo day year)	Permit Number	Well ID	FINDS Number

II. Owner Name and Address

Owner Name	Scepter, Inc (Gainey B. Scott III)
Street Address	1485 Scepter Lane
Phone Number	(931) 535-3565
City	Waverly
State	TN
ZIP CODE	37185

III. Operator Name and Address

Owner Name	Scepter, Inc.
Street Address	6467 N. Scepter Road
Phone Number	(812) 735-2500
City	Bicknell
State	IN
ZIP CODE	47512

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
[x] Yes [ ] No	[x] Private [ ] Federal [ ] Other	[x] Owner [ ] Operator	3341

VIII. Well Status *(Mark "x")*

[ ] A. Operating	Date Started (mo day year)	[ ] B. Modification/Conversion	[x] C. Proposed

IX. Type of Permit Requested *(Mark "x" and specify if required)*

[x] A. Individual	[ ] B. Area	Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s)
		0	1	Scepter, Bicknell, Indiana

X. Class and Type of Well *(see reverse)*

A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
I	"1"	N/A	N/A

XI. Location of Well(s) or Approximate Center of Field or Project

Latitude Deg	Latitude Min	Latitude Sec	Longitude Deg	Longitude Min	Longitude Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
47	27	0.80	21	56	0.82	12	4-N	9W	SW	1300	SE	1750	W

XII. Indian Lands (Mark 'x')

[ ] Yes
[x] No

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title *(Type or Print)*	B. Phone No. *(Area Code and No.)*
Gainey B. Scott III, President, Scepter, Inc.	(931) 535-3565
C. Signature: G B. Scott III	D. Date Signed: 10/8/08

Well Class and Type Codes

Class I		Wells used to inject waste below the deepest underground source of drinking water.
Type	**"I"**	Nonhazardous industrial disposal well
	"M"	Nonhazardous municipal disposal well
	"W"	Hazardous waste disposal well injecting below USDWs
	"X"	Other Class I wells (not included in Type "I," "M," or "W")
Class II		Oil and gas production and storage related injection wells.
Type	**"D"**	Produced fluid disposal well
	"R"	Enhanced recovery well
	"H"	Hydrocarbon storage well (excluding natural gas)
	"X"	Other Class II wells (not included in Type "D," "R," or "H")
Class III		Special process injection wells.
Type	**"G"**	Solution mining well
	"S"	Sulfur mining well by Frasch process
	"U"	Uranium mining well (excluding solution mining of conventional mines)
	"X"	Other Class III wells (not included in Type "G," "S," or "U")
Other Classes		Wells not included in classes above. Class V wells which may be permitted under §144.12. Wells not currently classified as Class I, II, III, or V.

Attachments to Permit Application

Class	**Attachments**
I new well	A, B, C, D, F, H – S, U
existing	A, B, C, D, F, H – U
II new well	A, B, C, E, G, H, M, Q, R; optional – I, J, K, O, P, U
existing	A, E, G, H, M, Q, R, – U; optional – J, K, O, P, Q
III new well	A, B, C, D, F, H, I, J, K, M – S, U
existing	A, B, C, D, F, H, J, K, M – U
Other Classes	To be specified by the permitting authority

INSTRUCTIONS - Underground Injection Control (UIC) Permit Application

Paperwork Reduction Act: The public reporting and record keeping burden for this collection of information is estimated to average 394 hours for a Class I hazardous well application, 252 hours for a Class I non-hazardous well application, 32 hours for a Class II well application, and 119 hours for a Class III well application. Burden means the total time, effort, or financial resource expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW., Washington, DC 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

This form must be completed by all owners or operators of Class I, II, and III injection wells and others who may be directed to apply for permit by the Director.

I. **EPA I.D. NUMBER** - Fill in your EPA Identification Number. If you do not have a number, leave blank.

II. **OWNER NAME AND ADDRESS** - Name of well, well field or company and address.

III. **OPERATOR NAME AND ADDRESS** - Name and address of operator of well or well field.

IV. **COMMERCIAL FACILITY** - Mark the appropriate box to indicate the type of facility.

V. **OWNERSHIP** - Mark the appropriate box to indicate the type of ownership.

VI. **LEGAL CONTACT** - Mark the appropriate box.

VII. **SIC CODES** - List at least one and no more than four Standard Industrial Classification (SIC) Codes that best describe the nature of the business in order of priority.

VIII. **WELL STATUS** - Mark Box A if the well(s) were operating as injection wells on the effective date of the UIC Program for the State. Mark Box B if wells(s) existed on the effective date of the UIC Program for the State but were not utilized for injection. Box C should be marked if the application is for an underground injection project not constructed or not completed by the effective date of the UIC Program for the State.

IX. **TYPE OF PERMIT** - Mark "Individual" or "Area" to indicate the type of permit desired. Note that area permits are at the discretion of the Director and that wells covered by an area permit must be at one site, under the control of one person and do not inject hazardous waste. If an area permit is requested the number of wells to be included in the permit must be specified and the wells described and identified by location. If the area has a commonly used name, such as the "Jay Field," submit the name in the space provided. In the case of a project or field which crosses State lines, it may be possible to consider an area permit if EPA has jurisdiction in both States. Each such case will be considered individually, if the owner/operator elects to seek an area permit.

X. **CLASS AND TYPE OF WELL** - Enter in these two positions the Class and type of injection well for which a permit is requested. Use the most pertinent code selected from the list on the reverse side of the application. When selecting type X please explain in the space provided.

XI. **LOCATION OF WELL** - Enter the latitude and longitude of the existing or proposed well expressed in degrees, minutes, and seconds or the location by township, and range, and section, as required by 40 CFR Part 146. If an area permit is being requested, give the latitude and longitude of the approximate center of the area.

XII. **INDIAN LANDS** - Place an "X" in the box if any part of the facility is located on Indian lands.

XIII. **ATTACHMENTS** - Note that information requirements vary depending on the injection well class and status. Attachments for Class I, II, III are described on pages 4 and 5 of this document and listed by Class on page 2. Place EPA ID number in the upper right hand corner of each page of the Attachments.

XIV. **CERTIFICATION** - All permit applications (except Class II) must be signed by a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, and by a principal executive or ranking elected official for a public agency. For Class II, the person described above should sign, or a representative duly authorized in writing.

INSTRUCTIONS - Attachments

Attachments to be submitted with permit application for Class I, II, III and other wells.

A. **AREA OF REVIEW METHODS** - Give the methods and, if appropriate, the calculations used to determine the size of the area of review (fixed radius or equation). The area of review shall be a fixed radius of 1/4 mile from the well bore unless the use of an equation is approved in advance by the Director.

B. **MAPS OF WELL/AREA AND AREA OF REVIEW** - Submit a topographic map, extending one mile beyond the property boundaries, showing the injection well(s) or project area for which a permit is sought and the applicable area of review. The map must show all intake and discharge structures and all hazardous waste treatment, storage, or disposal facilities. If the application is for an area permit, the map should show the distribution manifold (if applicable) applying injection fluid to all wells in the area, including all system monitoring points. Within the area of review, the map must show the following:

Class I

The number, or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, and other pertinent surface features, including residences and roads, and faults, if known or suspected. In addition, the map must identify those wells, springs, other surface water bodies, and drinking water wells located within one quarter mile of the facility property boundary. Only information of public record is required to be included in this map;

Class II

In addition to requirements for Class I, include pertinent information known to the applicant. This requirement does not apply to existing Class II wells;

Class III

In addition to requirements for Class I, include public water systems and pertinent information known to the applicant.

C. **CORRECTIVE ACTION PLAN AND WELL DATA** - Submit a tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within the area of review, including those on the map required in B, which penetrate the proposed injection zone. Such data shall include the following:

Class I

A description of each well's types, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require. In the case of new injection wells, include the corrective action proposed to be taken by the applicant under 40 CFR 144.55.

Class II

In addition to requirement for Class I, in the case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review which penetrate formations affected by the increase in pressure. This requirement does not apply to existing Class II wells.

Class III

In addition to requirements for Class I, the corrective action proposed under 40 CFR 144.55 for all Class III wells.

D. **MAPS AND CROSS SECTION OF USDWs** - Submit maps and cross sections indicating the vertical limits of all underground sources of drinking water within the area of review (both vertical and lateral limits for Class I), their position relative to the injection formation and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection. (Does not apply to Class II wells.)

E. **NAME AND DEPTH OF USDWs (CLASS II)** - For Class II wells, submit geologic name, and depth to bottom of all underground sources of drinking water which may be affected by the injection.

F. **MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA** - Submit maps and cross sections detailing the geologic structure of the local area (including the lithology of injection and confining intervals) and generalized maps and cross sections illustrating the regional geologic setting. (Does not apply to Class II wells.)

G. **GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES (Class II)** - For Class II wells, submit appropriate geological data on the injection zone and confining zones including lithologic description, geological name, thickness, depth and fracture pressure.

H. **OPERATING DATA** - Submit the following proposed operating data for each well (including all those to be covered by area permits): (1) average and maximum daily rate and volume of the fluids to be injected; (2) average and maximum injection pressure; (3) nature of annulus fluid; (4) for Class I wells, source and analysis of the chemical, physical, radiological and biological characteristics, including density and corrosiveness, of injection fluids; (5) for Class II wells, source and analysis of the physical and chemical characteristics of the injection fluid; (6) for Class III wells, a qualitative analysis and ranges in concentrations of all constituents of injected fluids. If the information is proprietary, maximum concentrations only may be submitted, but all records must be retained.

I. **FORMATION TESTING PROGRAM** - Describe the proposed formation testing program. For Class I wells the program must be designed to obtain data on fluid pressure, temperature, fracture pressure, other physical, chemical, and radiological characteristics of the injection matrix and physical and chemical characteristics of the formation fluids.

For Class II wells the testing program must be designed to obtain data on fluid pressure, estimated fracture pressure, physical and chemical characteristics of the injection zone. (Does not apply to existing Class II wells or projects.)

For Class III wells the testing must be designed to obtain data on fluid pressure, fracture pressure, and physical and chemical characteristics of the formation fluids if the formation is naturally water bearing. Only fracture pressure is required if the program formation is not water bearing. (Does not apply to existing Class III wells or projects.)

J. **STIMULATION PROGRAM** - Outline any proposed stimulation program.

K. **INJECTION PROCEDURES** - Describe the proposed injection procedures including pump, surge, tank, etc.

L. **CONSTRUCTION PROCEDURES** - Discuss the construction procedures (according to §146.12 for Class I, §146.22 for Class II, and §146.32 for Class III) to be utilized. This should include details of the casing and cementing program, logging procedures, deviation checks, and the drilling, testing and coring program, and proposed annulus fluid. (Request and submission of justifying data must be made to use an alternative to packer for Class I.)

M. **CONSTRUCTION DETAILS** - Submit schematic or other appropriate drawings of the surface and subsurface construction details of the well.

N. **CHANGES IN INJECTED FLUID** - Discuss expected changes in pressure, native fluid displacement, and direction of movement of injection fluid. (Class III wells only.)

O. **PLANS FOR WELL FAILURES** - Outline contingency plans (proposed plans, if any, for Class II) to cope with all shut-ins or wells failures, so as to prevent migration of fluids into any USDW.

P. **MONITORING PROGRAM** - Discuss the planned monitoring program. This should be thorough, including maps showing the number and location of monitoring wells as appropriate and discussion of monitoring devices, sampling frequency, and parameters measured. If a manifold monitoring program is utilized, pursuant to §146.23(b)(5), describe the program and compare it to individual well monitoring.

Q. **PLUGGING AND ABANDONMENT PLAN** - Submit a plan for plugging and abandonment of the well including: (1) describe the type, number, and placement (including the elevation of the top and bottom) of plugs to be used; (2) describe the type, grade, and quantity of cement to be used; and (3) describe the method to be used to place plugs, including the method used to place the well in a state of static equilibrium prior to placement of the plugs. Also for a Class III well that underlies or is in an exempted aquifer, demonstrate adequate protection of USDWs. Submit this information on EPA Form 7520-14, Plugging and Abandonment Plan.

R. **NECESSARY RESOURCES** - Submit evidence such as a surety bond or financial statement to verify that the resources necessary to close, plug or abandon the well are available.

S. **AQUIFER EXEMPTIONS** - If an aquifer exemption is requested, submit data necessary to demonstrate that the aquifer meets the following criteria: (1) does not serve as a source of drinking water; (2) cannot now and will not in the future serve as a source of drinking water; and (3) the TDS content of the ground water is more than 3,000 and less than 10,000 mg/l and is not reasonably expected to supply a public water system. Data to demonstrate that the aquifer is expected to be mineral or hydrocarbon production, such as general description of the mining zone, analysis of the amenability of the mining zone to the proposed method, and time table for proposed development must also be included. For additional information on aquifer exemptions, see 40 CFR Sections 144.7 and 146.04.

T. **EXISTING EPA PERMITS** - List program and permit number of any existing EPA permits, for example, NPDES, PSD, RCRA, etc.

U. **DESCRIPTION OF BUSINESS** - Give a brief description of the nature of the business.

ATTACHMENT A

ATTACHMENT A. AREA OF REVIEW

The area of review (AOR) was determined by using a fixed radius of 2 miles from the location of the test boring and injection well located at the Scepter Landfill. **Figure Introduction-1** shows the site location and **Figure A-1** depicts the AOR on a topographic map.

Physiographically, the site is located in an area of gently rolling farmland in rural Knox County, Indiana, at N. Bruce Road located approximately 3 miles west-northwest of the Town of Bicknell. Located on 22 acres, owned by Scepter, Inc., approximately 9 acres of the area consists of an active non-hazardous waste landfill for Scepter's aluminum recycling plant, which is located approximately 3 miles southeast of the landfill. Topographically, the site slopes gently towards the northwest from 550 feet to 525 feet above mean sea level near the well site. Adjacent to the site are fields of soybeans and a high-tension power line along the western border of the property.

A review of the Indiana Department of Natural Resources (DNR) Water Well and Oil and Gas files was performed to obtain information for the permit application. In addition, information was obtained from the *Site Suitability Feasibility Study, Non-Hazardous Injection Well Facility for Scepter Industries, Inc., Bicknell, Indiana* prepared by Envirocorp Services and Technology, Inc. (Envirocorp) in May 1997. Some of the figures for this permit application are from the above-referenced report. A copy of the report is included in **Appendix A**.

A.1 Depth of top of proposed injection interval

Based on stratigraphic test holes and petroleum production wells in the Knox County area, injection zones with sufficient hydrologic separation from the lowermost Underground Source of Drinking Water (USDW) and zones containing greater than 10,000 micrograms per liter (μg/L) Total Dissolved Solids (TDS) occur at depths of 800 feet to 4,000 feet in lower Pennsylvanian, Mississippi, Devonian, Silurian and upper Ordovician Age carbonate strata.

do you mean mg?

More precise depths of the base of the USDW, subsequent confining unit(s), and the proposed injection zone interval will be determined from the stratigraphic test corehole study which began September 10, 2008 and is expected to be completed by early November, 2008. In addition to the physical cores available for examination, laboratory tests will performed using ASTM standards for determining geotechnical and hydrologic (permeability, porosity, etc.) properties. would like precise depth of USDW

The following table presents our understanding of the subsurface at the proposed injection well site.

Table A-1 Subsurface Geologic Information			
Scepter Landfill, Bicknell, Indiana	**Depth (feet)**	**Thickness (feet)**	**Mean Sea Level (feet)**
Land Surface Elevation	0		+533
Top of Bedrock	-27		+527
Water Table Level	-50		+483
Bottom of USDW	-500	500	+33
Base of Pennsylvanian	-900		-367
Top of New Albany Shale	-2375	1500	-1842
Prospective Injection Zones:			
Salem Limestone	-1780	175	-1247
Middle and Lower Devonian	-2525	550	-1992
Moccasin Springs Formation	-3075	200	-2542
Maquoketa Group	-3275	100	-2742

A.2 Known or estimated pre-injection pressure at top of injection interval

Although unknown at this time, data on formation pressures will be obtained during the stratigraphic test corehole study by means of injection testing of straddle packers, hook wall packers, and/or borehole geophysical logs (pressure transducers) as necessary. Was this submitted

A.3 Known or estimated specific gravity of formation fluid at top of injection interval

Formation fluid specific gravity will be determined from water quality samples taken during drilling, sampling and geophysical logging of the test corehole. Was this submitted

A.4 Depth of bottom of lowermost aquifer which qualifies as an Underground Source of Drinking Water (USDW)

The lowermost extent of the USDW in the area is designated as within approximately 500 feet below land surface (bls). This corresponds with the base of the Linton Formation, classified by the Coxville Sandstone, Colchester Coal, Mecca Shale, Velpen Limestone, and Survant Coal members. Drinking water wells in the AOR range in depth from 27 feet to 250 feet bls. The deepest well terminates in the shale of the Petersburg Formation. Both the Petersburg and the Linton Formations are part of the Carbondale Group of Pennsylvanian Age.

The exact depth of this interval (and other depth estimates) will be submitted to EPA as a "Revised Attachment A" when the data become available at the completion of the test corehole study.

A.5 Hydrostatic head (or static water level) of lowermost USDW

At this time the Static Water Level (SWL) is estimated to be approximately 100 feet bls (+ 425 MSL); however, this elevation will be determined during the test corehole drilling currently underway, and will be submitted as a "Revised Attachment A" within two weeks of the completion of the corehole study, estimated as early December 2008.

A.6 Expected or modeled maximum pressure buildup in the injection interval

The expected pressure buildup will be a direct function of the formation permeability (millidarcys, mD) the injection rate, injection time, and degree of well development (well efficiency). Injection tests are planned on prospective intervals of the corehole using straddle packer and hook wall packers. Representative packer tests and test data are critical for proceeding with the final construction of the injection well and proper design for the anticipated capacity to be injected.

ATTACHMENT B

ATTACHMENT B. MAPS OF WELLS/AREA OF REVIEW

B.1 Each major intake and discharge structures for liquid waste

Major intake or discharge structures for liquid waste are not present within the AOR. The landfill operation at the site currently collects leachate from the lined landfill in storage tanks for transport and disposal at an off-site location. The AOR is depicted in **Figure A-1**. Site features are included on **Figure B-1**. Roads and residences within the AOR are shown on **Figure B-2**.

B.2 Each hazardous waste treatment, storage, or disposal facility

Hazardous waste treatment, storage or disposal facilities are not present within the AOR. The landfill operation is listed by the State of Indiana as a restricted, solid waste landfill.

B.3 Number, name and location of all producing wells

There are no petroleum-producing wells in the AOR.

B.4 Number, name and location of all injection wells of all classes

There are no injection wells of any Underground Injection Control UIC class located within the AOR. There are a total of 10 test holes and/or abandoned wells located within the AOR ranging in depth from 181 to 1,965 feet. The 10 test holes were dry holes, and all were plugged. Test hole locations and Indiana Geological Survey (IGS) well IDs are depicted on **Figure B-3**. Test hole completion logs and plugging affidavits are included, as available, in Appendix B.

B.5 Number, name and location of all abandoned wells, plugged wells, and dry holes

On August 15, 2008, Maggie Gilliland (URS) met with IGS Personal to review boring records in the AOR. The following information was obtained from their computer files and original files.

IGS IDs, total boring depths, terminal formation information, and corresponding locations of abandoned, plugged and dry holes with the AOR are shown in **Table B-1** below.

Table B-1 AOR Abandoned, Plugged and Dry Holes			
IGS ID	**Total Depth (feet)**	**Terminal Formation**	**Location (Township, Range, and Section or Military Donation)**
123076	1965	Salem	4N, 9W, Donation 121
123057	407	Pennsylvanian	4N, 9W, Donation 144
123082	1719	St. Louis	4N, 9W, 10
150125	1465	St. Genevieve	4N, 9W, Donation 1
123067	1595	St. Louis	4N, 9W, Donation 1
123083	1570	St. Louis	4N, 9W, 11
150123	900	Pennsylvanian	4N, 9W, 2
150124	340	Pennsylvanian	4N, 9W, 2
123052	407	Pennsylvanian	4N, 8W, Donation 231
123053	181	Pennsylvanian	4N, 8W, Donation 231

B.6 Known or suspected faults

There are no known or suspected faults located within the AOR. **Figure B-4** shows the location of the nearest mapped faults southwest of the AOR.

B.7 Location of all water wells of public record or otherwise known to the applicant, within the AOR or within a quarter mile of the facility property boundary, whichever is greater

There are no high capacity or public supply water wells of public record or otherwise known to the applicant, located within the AOR.

B.8 Bodies of water, springs, surface and subsurface mines and quarries, residences, and roads within the AOR, or within a quarter mile of the facility property boundary, whichever is greater

Surface water is present at the landfill property in a small detention man-made pond located north of the test core hole/injection well location. There is a small un-named ephemeral stream located approximately 0.5 miles west of the site, which flows west/northwest into Maria Creek. There is also an un-named ephemeral stream located approximately 1 mile northwest of the site, which flows northwest into Maria Creek. There is an un-named ephemeral stream located 0.75 miles northeast of the site, which flows north. Kuhn Creek is located approximately 1.5 miles east of the site, and flows east. There is an un-named ephemeral stream located approximately 1.5 miles southeast of the site, which flows southeast into Indian Creek. There is an un-named ephemeral stream located approximately 1.25 miles southwest of the site, which flows west/northwest into Smalls Creek. There are several small ponds located within the AOR, the closest of which is approximately 0.25 miles to the southeast. Surface water features are included on **Figure A-1**.

There are no quarries present within the AOR. Underground coalmines are present within the AOR southeast of the site, in the direction of Bicknell, Indiana. The closest portion of a mine is approximately 1.3 miles to the east/southeast and extends to the outside of the AOR. Underground coalmine locations are included on **Figure B-5**.

B.9 List of names and addresses of all owners of record of land within a quarter mile of the facility boundary, unless waived by the Director

There are 18 low capacity water wells located within the AOR, according to the map provided by the Indiana Department of Natural Resources (DNR). Of the 18 wells, 15 had corresponding logs which provided details about the well. The closest water well is located at the site with Reference Number 228442. The well was installed in 1965, but it cannot be confirmed that the well is still present. The DNR does not have an abandonment notification for this well, which does not necessarily mean that the well was not properly abandoned. A site walkover was performed on August 27, 2008 to determine if the well was still present. There is no indication that the well is still present, and the area is currently utilized for the growing of soybeans. If a well was present adjacent to a residence, the home is no longer present, and the well has been tilled over for decades. Based on the information obtained on the water well log, the well was drilled to 218 feet and was bailed dry after two hours. Therefore, it is unlikely that the well is still in existence or that it was a producing well. Water well depths within the AOR ranged from 27 to 250 feet below land surface (bls). Of the 15 water wells, two had abandonment forms filed with the DNR. Details about the 15 wells are provided in the **Table B-2** below. Water well logs and abandonment forms are included in **Appendix B**. The locations of the water wells are included on **Figure B-6**.

Table B-2 AOR Water Wells					
Reference Number	**Use**	**Depth (feet)**	**Bedrock Elevation (feet)**	**Location (Township, Range, and Section or Military Donation)**	**Abandoned**
228400	Residential	70	485	4N, 9W, Donation 233	Unknown
228405	Residential	177	390	4N, 9W, Donation 231	Unknown
228356	Residential	80	530	4N, 9W, 1	Yes
228442	Residential	218	550	4N, 9W, 12	Unknown
228447	Residential	250	480	4N, 9W, 11	Unknown
228452	Residential	42	481	4N, 9W, 11	Unknown
228432	Residential	70	524	4N, 9W, Donation 145	Unknown
228437	Residential	175	516	4N, 9W, Donation 145	Unknown
228439	Residential	125	555	4N, 9W, Donation 145	Unknown
333351	Residential	120	550	4N, 9W, Donation 144	Yes
228338	Residential	150	535	4N, 9W, Donation 143	Unknown
228343	Residential	27	537	4N, 9W, Donation 143	Unknown
228449	Residential	170	530	4N, 9W, Donation 143	Unknown
228454	Residential	110	530	4N, 9W, Donation 143	Unknown
228427	Residential	140	490	4N, 9W, Donation 121	Unknown

Property owners within one-quarter mile of the property boundary are listed in **Table B-3** below. A map depicting property owner locations in included as **Figure B-7**.

*

Table B-3 Site Adjacent Property Owners			
Property Owner	**Address**	**Alternate Address**	**Map ID**
Mr. Michael Page	Route 1, Box 233A, Bicknell, IN 47512	None	A
Mr. Daniel Mackey	Route 1, Box 98B, Bicknell, IN 47512	None	B
Mr. Ralph Chattin	Route 1, Bicknell, IN 47512	None	C
Mr. Jerry Allen	Route 1, Box 267A, Bicknell, IN 47512	1902 North Second Street, Vincennes, IN 47591	D
Mr. Lloyd Duke	Route 1, Box 281, Bicknell, IN 47512	None	E
Mr. Hershell Elliot	Route 1, Box 262, Bicknell, IN 47512	None	F
Ms. Maxine Lafferty	Lafferty Farm -Route 1, Bicknell, IN 47512	None	G
Andrea Pennington Trust	NA	None	H

B.10 A description of the methods used to locate wells in the AOR.

A review of the Indiana DNR Water Well and Oil and Gas files was performed to obtain information for the permit application. In addition, information was obtained from the *Site Suitability Feasibility Study, Non-Hazardous Injection Well Facility for Scepter Industries, Inc., Bicknell, Indiana* prepared by Envirocorp Services and Technology, Inc. (Envirocorp) in May 1997. Some of the figures for this permit application have been taken from the above-referenced report. A copy of the report is included in Appendix A.

The *Indiana Map* (http://129.79.145.7/arcims/statewide_mxd/viewer.htm), a GIS Atlas for Indiana provided by the Indiana Geological Survey, was utilized for mapping and data retrieval purposes regarding coalmines, water well locations, and other economic and geological information. The *Petroleum Database Management System – Map Viewer* (http://igs.indiana.edu/pdms/), a GIS Spatial Data Viewer provided by the Indiana Geological Survey, was utilized to obtain detailed information regarding stratigraphic borings, test holes, production wells, and injection wells within the AOR and beyond. The DNR Water Well Record Database (http://www.in.gov/dnr/water/7067.htm) was utilized to obtain detailed information regarding drinking water wells within the AOR. The *3 O'Clock Cross Section in the Illinois Basin - Wayne County, Illinois to Switzerland County, Indiana*, developed in a joint venture between the Indiana, Illinois and Kentucky Geological Surveys, was utilized for geological correlation of formations and units in the subsurface at the site. The *Hydrogeological Atlas of Aquifers in Indiana* (Fenelon, et al., 1994) was utilized in determining the depth of the USDW at the site.

ATTACHMENT C

ATTACHMENT C. CORRECTIVE ACTION PLAN AND WELL

Corrective action plan for inadequately plugged wells in the AOR which penetrate the top of the confining zone

There are a total of 10 test holes and/or wells located within the AOR. Six (6) test holes were advanced which penetrate the top of the confining zone or extend past the lowermost portion of the USDW (555 feet bls). The 10 test holes were dry holes, and all were plugged. The locations of test holes and their associated Indiana Geological Survey (IGS) well IDs are depicted on **Figure C-1**.

IGS IDs, total boring depths, terminal formation information, corresponding location, drilling/completion date, (owner/operator)/lease name, plugging date and distance from the proposed well location are shown in **Tables C-1** and **C-2**:

Table C-1
AOR Test Hole Information

IGS ID	Total Depth (feet)	Terminal Formation	Location (Township, Range, and Section or Military Donation)	Drilling/Completion Date
123076	**1965**	**Salem**	**4N, 9W, Donation 121**	**4/6-13/1950**
123057	407	Pennsylvanian	4N, 9W, Donation 144	1/14/1974
123082	**1719**	**St. Louis**	**4N, 9W, 10**	**12/22/1921**
150125	**1465**	**Ste. Genevieve**	**4N, 9W, Donation 1**	**1/1/1912**
123067	**1595**	**St. Louis**	**4N, 9W, Donation 1**	**12/5-20/1949**
123083	**1570**	**St. Louis**	**4N, 9W, 11**	**11/15-23/1949**
150123	**900**	**Pennsylvanian**	**4N, 9W, 2**	**12/5/1984**
150124	340	Pennsylvanian	4N, 9W, 2	12/12/1984
123052	407	Pennsylvanian	4N, 8W, Donation 231	1/5/1974
123053	181	Pennsylvanian	4N, 8W, Donation 231	1/15/1974

Table C-1 (Continued)

IGS ID	(Owner/ Operator)/Lease	Plugging Date	Distance from Proposed Well (feet)
123076	**Reed/McBride**	**4/14/1950**	**9,400**
123057	Dikor/Berry	1/14/1974*	6,780
123082	**Alzehouse/Richey**	**12/22/1921***	**9,450**
150125	**Alzehouse/Richey**	**1/1/1912***	**8,200**
123067	**Messmer/Gognat**	**12/20/1949**	**8,420**
123083	**Messmer Oil/Cummins**	**11/23/1949**	**6,650**
150123	**Shot Point Services/Hill**	**12/5/1984***	**9,620**
150124	Shot Point Services/Hill	12/12/1984*	9,630
123052	Dikor/Worland	1/5/1974*	4,990
123053	Dikor/Worland	1/15/1974*	4,990

* = details not available for differentiation between Drilling/Completion Date and Plugging Date.
Entries in **BOLD** denote test holes that were drilled deeper than the USDW.

C.1 Well construction, date of construction and total depth

Included in **Table C-1**

C.2 Well operator/owner

Included in **Table C-1**

C.3 Cement records

Included in **Appendix B** Not in Appendix B

C.4 Plugging records

Included in **Appendix B**

C.5 Distance from proposed injection well

Included in **Table C-1**

ATTACHMENT D

ATTACHMENT D. MAPS AND CROSS SECTIONS OF USDWs

D.1 Stratigraphic column of site which indicates all USDWs

Attached **Figure D-1**, adaped from IGS, Open File Series 1990-3, shows the anticipated stratigraphic units at the proposed injection well site. **Table D-1**, from the Envirocorp Report (**Appendix A**), provides a summary of the formations and corresponding depths anticipated at the site. A more detailed description of the formations are contained in **Appendix A**.

D.2 Data substantiating the depth of the lowermost USDS, if available

Based on other stratigraphic borings and logs in the area and discussions with IGS personnel the base of the USDW is about 500-600 feet below land surface at the proposed well site.

TABLE 3.3.1-I

Estimated Formation Tops and Thickness

Group	Formation	Approximate Depth (BGL)*	Approximate Depth (MSL)**	Approximate Thickness	Age
	Alluvium	0′	+480′	50′	Q
McLeansboro	Shellburn Fmn	50′	+430′	90′	P
Carbondale	Dugger Fmn	140′	+340′	90′	P
	Petersburg Fmn	230′	+250′	175′	P
	Linton Fmn	405′	+75′	150′	P
Raccoon Creek	Staunton Fmn	555′	-75′	125′	P
	Brazil Fmn	680′	-200′	75′	P
	Mansfield Fmn	755′	-275′	255′	P
Buffalo Wallow	Absent	-----	----	----	M
Stephensport	Glen Dean Ls	1010′	-530′	10′	M
	Hardinsburg Fmn	1020′	-540′	65′	M
	Haney Ls	1085′	-605′	10′	M
	Big Clifty Fmn	1095′	-615′	35′	M
	Beech Creek Ls	1130′	-650′	10′	M
West Baden	Cypress Fmn	1140′	-660′	60′	M
	Reelsville Ls	1200′	-720′	5′	M
	Sample Fmn	1205′	-725′	35′	M
	Beaver Bend Ls	1240′	-760′	10′	M
	Bethel Fmn	1250′	-770′	30′	M
Blue River	Paoli Ls	1280′	-800′	50′	M
	Ste. Genevieve Ls	1330′	-850′	125′	M
	St. Louis Ls	1455′	-975′	325′	M
Sanders	Salem Ls	1780′	-1300′	175′	M
	Harrodsburg Ls	1955′	-1475′	125′	M
	Muldraugh Fmn	2080′	-1600′	300′	M
Borden	Edwardsville Fmn	2380′	-1900′	75′	M
	Spickert Knob Fmn (Absent)	----	----	---	M
	New Providence Shale	2455′	-1975′	75′	M
New Albany Shale	---	2530′	-2050′	150′	M/D
Muscatatuck IZ	North Vernon Ls	2680′	-2200′	100′	D
	Jeffersonville Ls	2780′	-2300′	100′	D
New Harmony	Backbone Ls	2880′	-2400′	250′	D
Bainbridge	Bailey Ls	3130′	-2650′	100′	D
	Mocassin Springs Fmn	3230′	-2750′	300′	S
	St. Claire Limestone (or Salamonie Dolomite)	3530′	-3050′	50′	S
----	Sexton Creek Limestone	3580′	-3100′	50′	S
Maquoketa	Brainard Sh	3630′	-3150′	120′	O
	Fort Atkinson Ls	3750′	-3270′	30′	O
	Scales Sh	3780′	-3300′	150′	O
Trenton	Trenton	3930′	-3450′	125′	O
Black River	Plattin Fmn	4055′	-3575′	250′	O
	Pecatonica Fmn	4305′	-3825′	75′	O
Ancell	Joachim Dol	4380′	-3900′	150′	O
	Dutchtown Fmn	4530′	-4050′	100′	O
	St. Peter Ss	4630′	-4150′	50′	O

(from Envirocorp – Appendix A) **Table D-1**

TABLE 3.3.1-I (Continued)

Estimated Formation Tops and Thickness

Group	Formation	Approximate Depth (BGL)*	Approximate Depth (MSL)**	Approximate Thickness	Age
(Knox) Prairie du Chien	Shakopee Dol	4680′	-4200′	800′	O
(Knox) Prairie du Chien	Oneata Dol	5480′	-5000′	400′	O
(Knox) Prairie du Chien	Potosi Dol	5880′	-5400′	1400′	C
(Potsdam) Munising	Eau Claire Fmn	7280′	-6800′	1000′	C
(Potsdam) Munising	Mt. Simon Ss	8280′	-7800′	1200′	C
	Precambrian	9480′	-9000′	-----	PC

Geologic Time Periods

Quaternary = Q
Pennsylvanian = P
Mississippian = M
Devonian = D
Silurian = S
Ordovician = O
Cambrian = C
Precambrian = PC

* BGL =Below Ground Surface
** MSL =Mean Sea Level

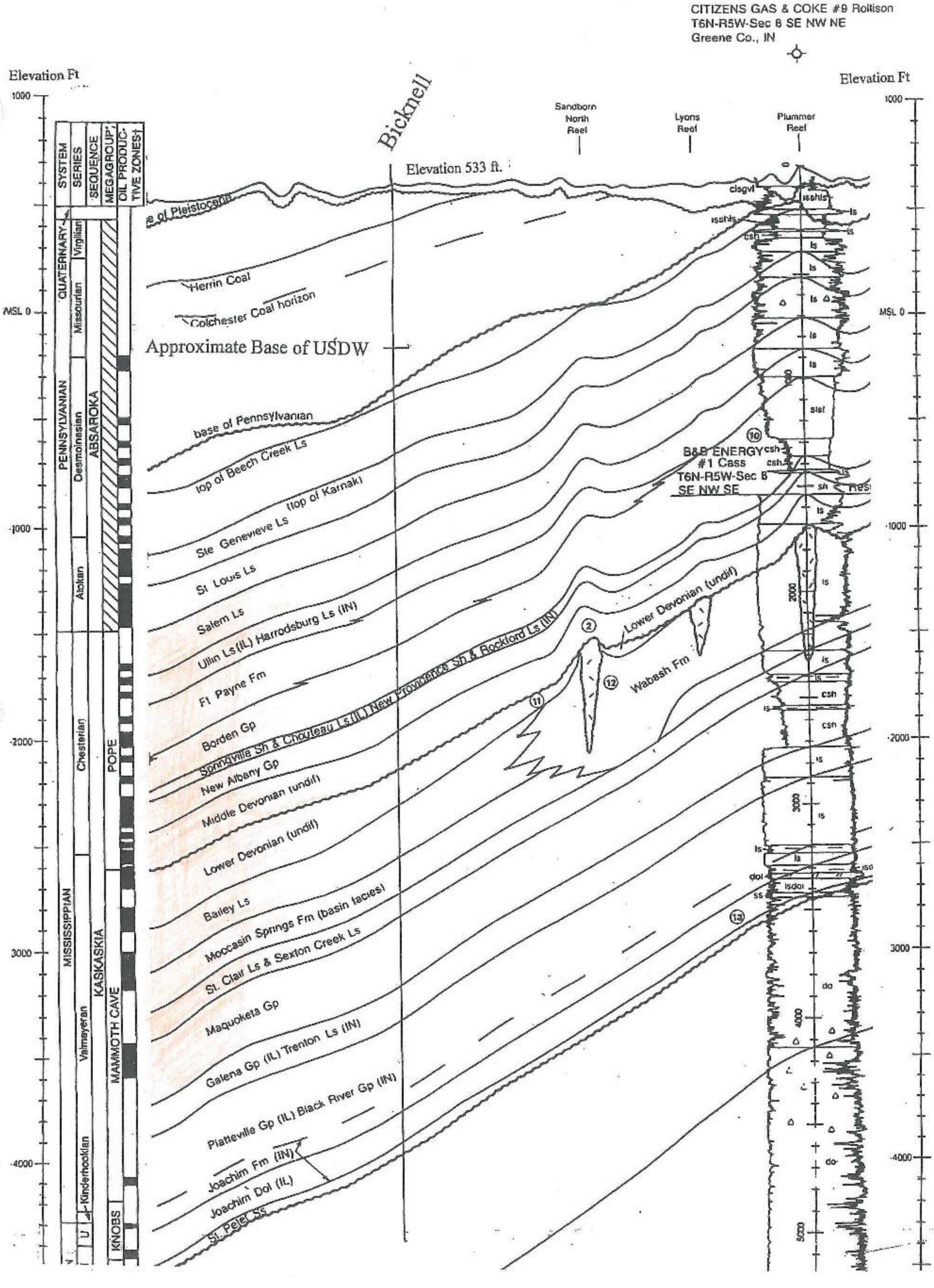


Figure D-1
Stratigraphic Units beneath proposed Bicknell, Indiana Site
from
Illinois State Geological Survey
Open File Series 1990-3

ATTACHMENT E

ATTACHMENT E. DOES NOT APPLY TO CLASS I WELLS

ATTACHMENT F

F.6 Overview of Core Drilling and Formation Testing

Mobilization of the core drilling rig, by Boart-Longyear, Wyethville, Virginia began on September 2, 2008. The rig was set up, three (3) mud pits were constructed, a blowout preventer was installed, and drilling water was brought to the site in roll-off containers. Drilling of the blowout preventer borehole for the casing (5.5-inch) began on September 12, 2008, and the borehole was grouted with cement to a depth of 265 feet below land surface (bls).

Once the blowout preventer was installed, drilling continued 24 hours per day, 7 days a week (except for two 5-day breaks beginning October 3 and November 3, 2008) until total depth was obtained, 2,286 feet on October 20, 2008.

The following data were collected and tests conducted for the core hole (Scepter, Bicknell CH-1).

1. GPS Location: 38° 47' 27.80" N, 87° 21' 56.81" W
2. Elevation 525 ft above mean sea level (AMSL)
3. Continuous rock cores:

Bit Size	Diameter	Depth (ft bls)
PQ	4 in. (O.D.) x 3.375 in. (core)	0 - 1,034
HQ	3.5" (O.D.) x 2.5" (core)	1,300 – 2,286

4. Borehole Geophysical Logs (by Weatherford, International Ltd., Clay City, Illinois, October 21, 2008. Temporary casing was set to 1,328 ft bls.

Log	Depth (ft bls)
Natural Gamma	0 – 2,286
Compensated Neutron	1,330 – 2,286
Compensated Density	1,330 – 2,286
Induction Array	1,330 – 2,286

5. Water samples collected at:

Depth (ft bls)	Conductivity	Chlorides	Total Dissolved Solids
475	NS*	X	X
784	X	X	X
1,034	X	X	X

* = field meter, malfunction

6. Laboratory testing of cores: submitted November 26, 2008, to Bowser-Morner, Inc.; received geotechnical report December 22, 2008.

Depth (ft bls)	Tests
1,543 – 1,545	Weight pcf, specific gravity, void ratios, porosity, saturation %, volume-voids, water, solids, permeability Methods: ASTM D 854, ASTM D 5084, EM-1110-2-190
1,668 – 1,670	
2,016 – 2,018	
2,044 – 2,046	

7. Complete description of core hole with stratigraphic units identified by Ms. Margaret Gilliland, Licensed Professional Geologist (LPG), # 2221, Indiana, URS Corporation.

F.7 On-Site Stratigraphic Core Hole – Summary of Field Notes, Sequence of Events

A test hole permit was obtained from the Indiana Department of Natural Resources (IDNR) Division of Oil and Gas to advance the test hole boring up to 4,000 feet below land surface (bls). The permit (#53616) was issued to Scepter, Inc., on August 18, 2008 and was effective on September 5, 2008. The test hole permit (#53616) was obtained from the IDNR to drill a test core hole on the Scepter Industries landfill property located west of Bicknell, Indiana (T04N, R09W, 512, 13005, 1750W, SW, SE). The purpose of the core hole was to obtain a continuous rock core of the subsurface geologic units in order to:

1. Identify the stratigraphic units present at the site.
2. Locate the base (depth) of the local underground source of drinking water (USDW).
3. Locate the approximate depth to the groundwater >10,000 milligrams per liter (mg/L) total dissolved solids (TDS) and chloride concentrations.
4. Locate the base (depth) of the local coal seams.
5. Identify and characterize the depth to, and thickness of, confining units at the site.
6. Identify and characterize the depth to, and thickness of, a suitable injection zone to receive the proposed brine wastewaters, if present.

On September 12, 2008, Boart-Longyear, of Wytheville, Virginia, began drilling the test hole boring under the supervision of URS Corporation (URS). Prior to beginning drilling activities, three settlement pits were dug adjacent to the drilling rig. The pits were approximately 10 feet long by 15 feet wide by 10 feet deep and were connected by channels to allow settling of the rock chips from the drilling mud. The pits were lined with heavy-duty plastic to prevent seepage into or out of the pits. Drilling mud was prepared and stored in the settlement pits prior to beginning drilling activities.

The test hole boring was advanced to 27 feet bls, when bedrock was encountered. Rock coring began on September 13, 2008, using a PQ drilling rod, which is 4 inches outer diameter (O.D.). The PQ rods collect 10-foot long by 3.375-inch-diameter rock cores using a diamond bit cutting head. Continuous cores were retrieved until a depth of 265 feet bls was obtained. At that time the borehole was reamed out to approximately 6 inches in diameter and permanent 5.5-inch-diameter casing was installed and concreted into the hole for the installation of the blowout preventer. The blowout preventer was installed in the borehole September 20, 2008, and coring resumed.

On September 22, 2008, a groundwater sample was collected for water quality analysis at 475 feet bls. First the drilling mud was flushed out of the hole, then a 3-inch Grundfos® pump was lowered to approximately 125 feet bls. The Grundfos® pump has the capability of pumping 15 gallons per minute. Field conductivity readings were attempted, but the unit failed calibration and temperature measurements were collected until stabilization occurred, then water samples were collected into laboratory-supplied bottles and submitted under chain-of-custody documentation to Pace Analytical Laboratories, Inc. (Pace) for analysis of total dissolved solids (TDS) and chloride. On September 25, 2008, a groundwater sample was collected from 784 feet bls; and on September 28, a groundwater sample was collected from 1,034 feet bls using the same protocol as described above. Laboratory analytical results indicated that total dissolved solids (TDS) were above 10,000 milligrams per liter (mg/L) in the sample collected from 1,034 feet bls.

The PQ rods were advanced to a depth of 1,330 feet bls, and continuous cores were collected. Drilling was not performed from October 3 through 8, 2008.

On October 9, 2008, the solid particles in the settlement pits were cleaned out by Duke's Earth Services, Inc. (DESI) of Mooresville, Indiana, using a vacuum extraction truck under the supervision of URS. This was conducted prior to resuming drilling activities to allow space for additional solids and new drilling mud.

On October 10, 2008, drilling activities resumed using an HQ drilling rod, which is 3.875 inches O.D. The HQ rods collect 15-foot long by 2.5-inch-diameter rock cores with a diamond bit cutting head. Continuous cores were retrieved to 2,175 feet bls, when the rods were removed to begin packer testing of the formation. The first packer test was performed from 2,087 feet to 2,175 feet bls, and the second was performed from 2,000 feet to 2,175 feet bls on October 17, 2008.

Coring of the test hole boring was continued to a depth of 2,285 feet bls, which was the termination depth. Packer tests were performed on October 20, 2008 from 2,230 feet to 2,285 feet bls and from 2,175 feet to 2,285 feet bls.

On October 21, 2008, Weatherford International Ltd. of Clay City, Illinois arrived on-site to perform electric logging of the test hole. Logs were collected from 1,330 feet bls to 2,285 feet bls. Only natural gamma borehole geophysical data were collected above

1,330 feet due to the PQ casing being present in the hole. Photo density, compensated neutron, gamma ray, array induction, and caliper logs were collected from 1,330 to 2,286 feet bls.

On October 21, 2008, the hole was plugged and concreted at approximately 1,500 feet bls and allowed to set up overnight. On October 22, 2008, removal of the PQ drilling rods was initiated, but the conductor casings were stuck. Wayne County Well Surveys Inc. of Barnhill, Illinois arrived on-site on October 24, 2008 to perform a free-point test of the well to determine the depth at which the drill casings were stuck in the hole. The casings were stuck at approximately 830 feet bls. Using a downhole line with blasting charges, the casing was cut at 830 feet bls. The casing pulled up approximately 2 feet and then stuck again. A second attempt at blasting the casing was made at 655 feet bls, but the casing was still stuck. This depth was chosen because it is below the USDW and the seal must be physically separated from the potential injection zones. Based on conversations with a field representative of the IDNR, Jon Limbach, if the casings are left in the hole, circulation behind the casing must be demonstrated. In an attempt to obtain circulation behind the temporary casings, the casing was perforated with small holes at a depth of 646 feet bls. Circulation was not evident, so the casings had to be removed, per Jon Limbach.

On October 25, 2008, Boart-Longyear delivered a rod cutter to the site to remove at least the top 655 feet of casing. When tension was placed on the casing for setup of the cutter, the casings came loose. Approximately 655 feet of casing were removed from the hole.

On October 26, 2008, casings were placed in the hole to tag the hole plug that was previously installed in the hole at 1,500 feet bls, prior to initiating backfilling of the hole. The plug was not present. Boart-Longyear left the site, with plans to return on November 3, 2008 with a mechanical plug.

On November 3, 2008, Boart-Longyear set the mechanical plug, using water pressure to deliver it to the desired depth of 1,500 feet bls. Concrete was placed on top of the plug to seal the hole.

On November 5, 2008, Jon Limbach was on-site to oversee the plugging of the test borehole, per IDNR regulations. Boart-Longyear initiated the plugging, which was performed in 300-foot lifts, to land surface. The concrete was allowed to set overnight and then tagged to determine how far it had settled. On November 6, 2008 the concrete had settled to approximately 85 feet bls and additional concrete was placed in the hole to bring it to the surface. Jon Limbach approved the plugging of the hole and requested that he be informed when the settlement pits were cleaned out and backfilled.

On November 20, 2008, DESI and URS were on-site to clean the solids out of the settlement pits, remove the liners, backfill the pits, and clean up the area. Jon Limbach was informed that the cleanup was completed.

F.8 Lithology/Stratigraphy of Test Boring - Overview

The proposed injection well location is underlain by approximately 27 feet of unconsolidated Quaternary Age deposits. Bedrock underlying the Quaternary is Pennsylvanian Age deposits. The Shellburn Formation of the McLeansboro Unit is present from approximately 27 to 143 feet below land surface (bls). This formation is made up of fossiliferous shale and sandstone with chert nodules; some limestone is also present.

The Carbondale Unit is found beneath the McLeansboro and is made up of the Dugger Formation, found from 143 to 250 feet bls; the Petersburg Formation, found from 250 to 411 feet bls; and the Linton Formation, found from 411 to 564 feet bls. The Dugger Formation is made up of shale and limestone with several coal beds, and pyrite is abundant in crystals and bands throughout. The Petersburg Formation is made up of fossiliferous limestone and shale, with several coal beds present, and pyrite is abundant as fossil replacement and crystals. The Linton Formation is made up of limestone/dolomite and shale, becoming more fossiliferous with depth. Sandstone with cross-bedding and laminations becomes abundant with depth, and some thin coal beds are present throughout.

The Raccoon Creek Unit is present beneath the Carbondale and is made up of the Staunton Formation, found from 564 to 644 feet bls; the Brazil Formation, found from 644 to 753 feet bls; and the Mansfield Formation, found from 753 to 1,050 feet bls. The Staunton Formation is made up primarily of laminated sandstone, with shale, coal, limestone and dolomite layers throughout. Some chert is present in the limestone. The Brazil Formation is made up primarily of sandstone with laminations and small amounts of limestone, dolomite and shale. Coal is present throughout in thin layers. The Mansfield Formation is primarily made up of sandstone with laminations and fossiliferous shale and limestone. Pyrite nodules and thin (<1/4-inch) coal seams are present near the base of the unit within interbedded sandstone and shale layers.

The Stephensport Unit, of Mississippian Age, is present beneath the Raccoon Creek, and is made up of the Glen Dean Limestone, found from 1,050 to 1,066 feet bls; the Hardinsburg Formation, found from 1,066 to 1,088 feet bls; the Haney Limestone, found from 1,088 to 1,092 feet bls; and the Big Clifty Formation, found from 1,098 to 1,144 feet bls. The Glen Dean Limestone is a massive limestone with solution fractures. The Hardinsburg Formation is made up of sandstone and shale with some coal. The Haney Limestone is a gray/green dolomitic limestone. The Big Clifty Formation is primarily made up of laminated sandstone interbedded with shale.

The West Baden Group is present beneath the Stephensport, and is made up of the Cypress Formation, found from 1,144 to 1,171 feet bls; the Reelsville Limestone, found from 1,171 to 1,174 feet bls; the Sample Formation, found from 1,174 to 1,226 feet bls; the Beaver Bend Limestone, found from 1,226 to 1,253 feet bls; and the Bethel Formation, found from 1,253 to 1,253.8 feet bls. The Cypress Formation is made up of interbedded sandstone and shale with pyrite nodules. The Reelsville Limestone is a green dolomitic limestone with pyrite. The Sample Formation is made up of interbedded sandstone and shale with cross bedding and laminations; some plant fossils are present within the shale. In addition, a 4-foot thick conglomerate is present within the center of the formation. This formation is adequate as a confining unit. The Beaver Bend Limestone is made up of fossiliferous limestone interbedded with green shale. The Bethel Formation is a black shale.

The Blue River Group is present beneath the West Baden Group, and is made up of the Aux Vases Formation, found from 1,253 to 1,273 feet bls; the Saint Genevieve Limestone, found from 1,273 to 1,419 feet bls; and the Saint Louis Limestone, found from 1,419 to 1,879 feet bls. The Aux Vases Formation is made up of green and red dolomite and limestone with chert nodules throughout. The Saint Genevieve Limestone is made up of fossiliferous, micritic and oolitic limestone. There is an abundance of solution fracturing and large calcite crystals and veins. The Saint Louis Limestone is made up of fossiliferous and micritic limestone. There is an abundance of solution fracturing and large calcite crystals and veins and abundant gypsum layers are present near the base of the unit.

The Sanders Group is present beneath the West Baden Group, and is made up of the Salem Limestone, found from 1,879 to 1,949 feet bls; the Harrodsburg Limestone, found from 1,949 to 2,074 feet bls; and the Muldraugh Formation, found from 2,074 to the base of the test boring at 2,285 feet bls. The Salem Limestone is made up of fossiliferous limestone with some calcite replacement of the fossils and minimal solution fracturing. The Harrodsburg Formation is made up of porous and vuggy fossiliferous limestone. The Muldraugh Formation is made up of fossiliferous and micritic limestone that is porous, with minimal fracturing of the formation matrix. A hard chert fractured layer was encountered at the base of the test hole. The Sanders Group is a highly productive interval for injection purposes. A more detailed site-specific stratigraphic log based on the core hole is shown on **Figure F-2**. Photographs of the coring activities are shown in **Appendix J**.

By: Ms. Margaret Gilliland, Licensed Professional Geologist (LPG), # 2221, Indiana, URS Corporation.

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
0	27	Unconsolidated			Quaternary
27	61	Gray, Shale, brachiopod fossils, finely laminated.	Shellburn	McLeansboro	Pennsylvanian
60	70	Black, Shale, small brachiopods, finely laminated			
70	103	Gray, Limestone, micritic			
103	143	Light Gray, Sandstone, Dark Laminae, 133 concretions, ~136-137.5, Dark Gray Shale. 141.5-143. Thicker Laminae, Grades to light tan.			
143	148	Medium Gray, Limestone w/ concretions	Dugger	Carbondale	
148	150	Medium Gray, Shale			
150	152	Medium Gray, Limestone			
152	155	Dark Gray Shale w/ Pyrite			
155	156.5	Black Coal w/ Pyrite			
156.5	162	Medium Gray, Limestone, w/ Pyrite near surface, laminae			
162	207	Light Gray, fine grained Sandstone, dark laminae			
207	208	Medium Gray, Limestone			
208	211	Black Coal w/ Pyrite			
211	221	Medium Gray, Dolomite			
221	237	Interbedded Light Gray, Limestone and Sandstone			
237	244	Medium Gray grading to Dark Gray, Shale			
244	250	Black, Shale, Thick Pyrite bands			
250	251	Medium Gray, Limestone	Petersburg		
251	254.5	Medium to Dark Gray Shale, some trace fossils (burrows) near surface of layer			
254.5	257	Black Coal w/ Pyrite			
257	261	Medium Gray, Dolomite			
261	272	Medium Gray, Limestone			
272	273.5	Medium Gray, Dolomite, Limestone			
273.5	277	Light to Medium Gray, Fossiliferous Limestone, massive (brachiopods) pyrite			
277	303	Medium to Dark Gray, Shale, ~278 brachiopod fossils and coal chunks, leaf fossils, laminated, pyrite			
303	307	Black Coal w/ Pyrite			
307	309	Medium Gray Limestone, with Pyrite, fossiliferous			
309	310	Light Gray Sandstone, medium to course grained			
310	313.5	Medium Gray Limestone			
313.5	315	Interbedded Medium Gray Sandstone and Limestone, laminated			
315	325.5	Medium Gray Shale, laminated, pyritized, fossils			
325.5	326.5	Medium Gray Fossiliferous Limestone			
326.5	331	Medium Gray Shale			
331	332	Medium to Light Gray Limestone			
332	334	Black to Dark Gray Shale, trace fossils near surface			
334	341	Grading into Black Coal			
341	343	Light Gray Dolomite			
343	355.5	Grading into Light Gray Limestone			
355.5	411	Light Gray Sandstone, fine to coarse grained, dark laminations to ~371, 376-382, 406-411			
411	422	Medium Gray Shale, ~420 Grading to Black,	Linton		
422	423	Dark Gray to Black Sandstone, medium grained			
423	426.5	Black Shale			
426.5	429	Black Coal			
429	434.5	Medium Gray Limestone hard, ~434.5 grading to Dolomite			
434.5	438	Dark Gray Dolomite			
438	442	Medium Gray Limestone			
442	443.5	Medium Gray Dolomite			
443.5	444	Dark Gray Shale			
444	445	Black Coal			

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
445	447	Dark Gray Dolomite ~446 becoming interbedded with Shale			
447	455	Light Gray to Tan fine grained Sandstone, cross bedding			
455	461	Gray to Medium Gray Shale, interbedded with Sandstone			
461	479	Medium Gray Shale, pyritized fossils, bivalves and brachiopods			
479	487	Dark Gray Shale, some trace fossils throughout ~484 chert nodule			
487	488	Black Coal			
488	496	Highly fractured underclay/Medium Gray Limestone			
496	498	Dark Gray to Black Shale	Linton (con't)	Carbondale (con't)	
498	501.5	Black Coal			
501.5	504.5	Dark Gray to Black Dolomite, interbedded with Shale of same color			
504.5	505.5	Black Coal			
505.5	508	Medium Gray Dolomite			
508	510	Grading to Limestone			
510	513	Tan to Light Gray Sandstone medium grained			
513	524	Medium Gray Limestone with some Dolomite beds near the surface			
524	564	Light Gray to Tan medium grained Sandstone, thin dark laminae, some <0.25 coal seams, 535-543 cross bedding			
564	568	Black Shale			
568	570	Black Coal			
570	577	Dark Gray Dolomite			
577	578	Black Coal w/ Pyrite			
578	601	Dark Gray grading to Light Gray at 580, medium to course Sandstone, ~588-590 several ~1' coal seams			Pennsylvanian (con't)
601	604	Medium to Dark Gray Dolomite			
604	605	Medium Gray Shale			
605	607	Medium Gray Dolomite			
607	609	Medium Gray Shale	Staunton		
609	615	Medium Gray Limestone with nodules / concretions			
615	616	Black Shale			
616	618	Dark Gray Limestone with abundant bivalve fossils			
618	629	Interbedded Sandstone, Shale in thin layers, Shale Dark Gray, Sandstone Light Gray, 626 becoming primarily Shale			
629	636	Light Gray Sandstone, fine to medium grained, ~633 dark laminae (shale)		Raccoon Creek	
636	644	Grading to primarily Dark Gray Shale, with Light Gray Sandstone laminations			
644	731	Light Gray Sandstone, fine to medium grained, 645-648 becoming laminated with ~1/4' Shale layers, 650.5 ~3" thick shale layer, 660 becoming more course grained, no laminations, 660.5-661 Dark Gray Dolomite, 661 fine to course grained, 695 dark laminations appear, 715 ~1' thick coal seam, 719 ~1' thick coal seam, ~722 dark laminations end	Brazil		
731	733	Conglomerate			
733	735	Medium Gray Limestone, hard			
735	745	Medium Gray Dolomite with pyrite			
745	745.5	Black Shale			
745.5	746	Black Coal			
746	750	Dark Gray Limestone, small fossils			
750	753	Light Gray Dolomite			

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
753	795	Dark Gray Shale, 786 Light Gray / Tan ~1/4" Sandstone Layer	Mansfield	Raccoon Creek (con't)	Pennsylvanian (con't)
795	796	Light to Medium Gray oolitic Limestone			
796	805	Dark Gray Shale, brachiopod fossils, 798 becoming laminated			
805	880	Light Gray Sandstone, medium to course grained, laminated with Dark Gray Shale, 813 becoming Medium Gray with light Gray laminations, 817 light Gray /tan Sandstone, fine to medium grained, 833-836 dark laminations, 841-843 dark laminations, 847-854 very finely laminated, 858-863 light with dark clasts - no structure, 836-877 highly laminated dark and light Gray all layers less than 1/4 inch, 877-880 Light Gray with thin dark lamination			
880	894	Dark Gray Sandstone with thin light laminations			
894	905	Tan Sandstone, fine to medium grained			
905	950	Light Tan Sandstone, medium to course grained, 907 thin Dark Gray Shale, 920-950 laminations			
950	996	Black Shale, laminated			
996	1015	Interbedded Light Gray / Tan Sandstone, with Shale, some fossils in the Shale, some <1/4 inch coal seams			
1015	1037	Medium Gray Shale, massive, 1025 becoming fossiliferous, plant fossils and pyrite nodules, more finely laminated grading to darker Gray, brittle			
1037	1041	Interbedded Dark Gray Shale and Medium Gray Sandstone. Fine grained			
1041	1049	Light Gray fine to medium grained Sandstone, with intermittant Medium Gray Shale beds, 1045 becoming more course grained, ~1048 1.5" thick Black Shale,			
1049	1050	Light Gray conglomerate			
1050	1050.02	1" thick Green Shale, 1" thick Black Shale			
1050.02	1066	Light Gray Limestone, solution fractures	Glen Dean Limestone	Stephensport	Mississippian
1066	1074	Medium Gray Sandstone ~1'. Light Gray Sandstone with Dark and Medium Gray laminations	Hardinsburg		
1074	1077	Black Shale, grading to coal			
1077	1088	Light Gray Sandstone, medium to course grained, with medium and dark Gray laminations			
1088	1092	Thin pyrite layer on surface, Medium Gray / Green Dolomite, weathered (underclay)	Haney Limestone		
1092	1098	Tan fine to medium grained Sandstone, 1095 becoming laminated, 1096 interbedded Dark Gray Shale	Big Clifty		
1098	1114	Brown fine to medium grained Sandstone			
1114	1115.5	Brown fine to medium grained Sandstone Interbedded with Dark Gray Shale			
1115.5	1144	Light Brown fine to medium grained Sandstone, some dark laminations throughout, 1130 fine to medium grained Light Tan Sandstone, 1131-1144 interbedded with Dark Gray Shale			
1144	1152	Light Gray / Tan, fine to medium grained Sandstone, interbedded with thin Shale layers, pyrite nodules, 1149-1152 becoming more Sandstone	Cypress	West Baden	
1152	1165	Dark Gray Shale with abundant thin light, fine grained Sandstone layers.			
1165	1171.5	Light Gray / Tan, fine to Medium grained Sandstone.			
1171.5	1174	Green Dolomite with pyrite	Reelsville LS		

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
1174	1184	Grading to Gray Shale, 1118 becoming interbedded with light Sandstone, 1181 becoming primarily Sandstone with Shale interbeds	Sample	West Baden (con't)	Mississippian (con't)
1184	1198	~2" thick conglomerate, Light Gray fine to medium grained Sandstone, wavy undulation, cross bedding, 1192 laminations and depositional features no longer present.			
1198	1202	Light Gray conglomerate, some thin layers of fine grained Sandstone			
1202	1226	Medium to Dark Gray Shale, more consolidated, not as fragile, some plant fossils			
1226	1236	Dark Gray Limestone, 1232-1233 thick fossiliferous (brachiopod) layer	Beaver Bend LS		
1236	1253	Interbedded greenish Gray shale, Light Gray Limestone, thin layers			
1253	1253.8	Black Shale	Bethel		
1253.8	1273.5	Green Dolomite with large pyrite crystals, ~1256 becoming red and green with small to large chert nodules, 1263-1263.5 Green Limestone, 1263.5 becoming mostly red with some green, more chert nodules present, 1269 becoming all green, chert still abundant	Aux Vases	Blue River	
1273.5	1327	Light Gray to White Sandstone, dark laminations to 1288, 1291-2 laminated, 1299 cross bedding and laminations present	St Genevieve LS		
1327	1343	Medium Gray Sandstone with dark laminations, 1335 grading to light Gray			
1343	1346	Interbedded dark Gray/black shale with thin sandstone layers, shale contains pyrite			
1346	1351	Dark Gray Shale, fossiliferous (leaves and brachiopods)			
1351	1351.6	4" layer of fossiliferous Limestone, 3" layer of black Shale with brachiopod fossils			
1351.6	1355	Green Dolomite, 1353 grading into dark green, 1354.5 grading into dark Gray			
1355	1355.5	Dark Gray Shale, brachiopod fossils			
1355.5	1356.5	Dark Gray Limestone			
1356.5	1357	Light Gray Limestone interbedded with green shale			
1357	1359.5	Green Dolomite with red streaks within, rip-up clasts at base			
1359.5	1365	Medium Gray Limestone, 1361 solution fractures with calcite crystals present, 1364 Ooids ~2" thick layer			
1365	1366	Gray/red/green shale			
1366	1369	Light Gray Limestone interbedded with green Shale			
1369	1370.5	Interbedded red and green Shale			
1370.5	1371	Interbedded light Gray Limestone and green Shale, Ooids present in Limestone			
1371	1378	Light Gray Limestone, fossiliferous, large calcite crystals, some solution fracturing			
1378	1382	Becoming Interbedded with medium Gray Micritic Limestone for ~6", then all micritic Limestone			
1382	1396	Medium Gray Fossiliferous Limestone, brachiopods, 1391-1393 rip-up clasts			
1396	1398	Green Limestone with white Limestone rip-up clasts			
1398	1408	Medium Gray calcareous Sandstone with some Dark Gray laminations, some calcite veins			
1408	1414	4" dark Gray/green Shale with rip-up clasts, Light Gray/white Limestone with thin ~1/4" green shale layers ~ every 1', Terminating with 1.5" of dark Gray Shale			
1419	1419	Tan Sandstone			

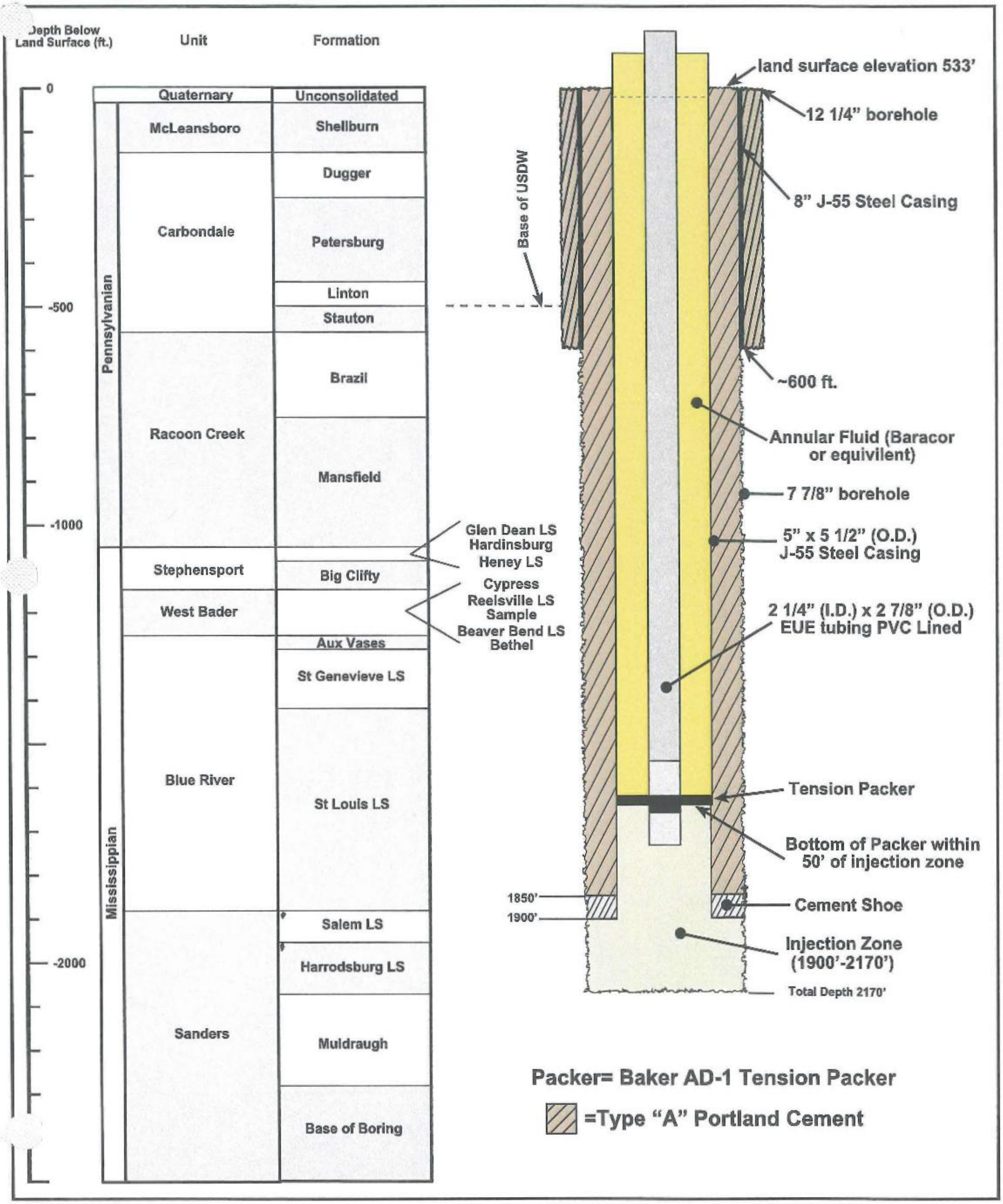
Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
1419	1451	Light Gray Micritic Limestone, calcite crystals throughout, large broken solution fractures present at 1429, 1432, 1334.5, 1338, 1341, 1344, and 1345, 1349-1351 thin unbroken solution fractures abundant	St Louis LS	Blue River (con't)	Mississippian (con't)
1451	1453	Medium Gray fossiliferous Limestone, brachiopods			
1453	1458	Light Gray Micritic Limestone			
1458	1463	Light Gray Fossiliferous Limestone, brachiopods			
1463	1465.5	Green Dolomite ~6" then grading into medium Gray, pyrite veins throughout			
1465.5	1473	Light Gray Limestone, abundant unbroken solution fractures			
1473	1483	Light Gray/Tan granular Limestone, no solution fractures			
1483	1485	Tan Dolomite w/ 1/4" black Shale at base			
1485	1487	Light Gray Limestone			
1487	1494	Tan Dolomite			
1494	1500	Light Gray Limestone, abundant thin solution fractures 1497 Large solution fractures with calcite crystals			
1500	1502	Tan Dolomite			
1502	1519	Light Gray Limestone, large solution fractures filled with calcite crystals 1503, 1509, 1509.5, 1511 some smaller unbroken fractures throughout			
1519	1520	Tan Dolomite			
1520	1524	Light Gray Limestone			
1524	1528	Tan Dolomite with large white Limestone, last @ 1527			
1528	1552	Light Gray Limestone nodules to 1532 1535 large 2" solution fracture filled with calcite crystals 1545 some nodules to 1551, some small solution fractures			
1552	1555	Medium Gray Limestone, sparse brach fossils			
1555	1557	Light Tan Limestone			
1557	1561	Light Gray fossiliferous Limestone 1560 ~1" thick solution fracture with large calcite crystal			
1561	1683	Light Gray Limestone, abundant large and small solution fractures 1604-1605.5 Light Gray Sandstone 1618 1" thick Dark Gray lamination 1626 becoming Medium Gray 1628 thick calcite veins throughout 1643 becoming Light Gray, calcite veins still apparent			
1683	1690	Tan calcareous Sandstone, Medium Gray			
1690	1697	Light Gray Limestone, abundant thin solution fractures			
1697	1700	Tan Dolomite, Dark Gray at base ~2"			
1700	1725	Light Gray Limestone 1707 1" thick Shale 1710 becoming Tan 1720-1723 Dark Tan, vuggy			
1725	1738	Tan Limestone, large 3" concretions, calcite nodules			
1738	1764	Tan Limestone, solution fracturing 1743 - 1754 dark laminations, limited solution fractures			
1764	1826	Brown Limestone, large calcite crystals 1788 dark laminations, becoming Light Brown 1800 6" Dark Shale 1820 ~1' thick calcite crystals			
1826	1849	Light Gray Dolomite and calcite (~50% mix)			
1849	1879	Light Gray Limestone 1853.5 ~1/2" Gypsum Layer 1858 ~ 1/2' Gypsum layer 1859.5 ~ 1/2" Gypsum layer 1859 - 1863 mottled Gypsum and Limestone 1864 1/2" Gypsum layer 1872 1.5" Gypsum layer 1874 ~1" Gypsum 1874.5 ~1" Gypsum layer			
1879	1949	Brown/Gray fossiliferous Limestone, brachiopods and some calcite replacement, minimal solution fracturing	Salem Limestone	Sanders	

Table F-1
Stratigraphy of Bicknell Core Hole
Scepter Test Hole #1
Scepter Landfill, Bicknell, Indiana
September 12 through November 5, 2008

Top	Bottom	Description	Formation	Unit/Group	Age
1949	1965	Dark Brown Limestone coral fossils - bryozoans	Harrodsburg Limestone	Sanders (con't)	Mississippian (con't)
1965	1989	Light Gray fossiliferous Limestone, solution fractures (1967, 1969, 1974), crushed fossiles and crinoids, calcite replacement some as big as 1"			
1989	1999	Brown Limestone, bryozoans and brachiopods			
1999	2004	Light Gray Limestone, vuggy			
2012	2030	Medium Gray Limestone, porous, fossiliferous			
2030	2041	Light Gray Limestone, fossiliferous - brachiopods, solution fractures			
2041	2047	Medium Gray Limestone, fossiliferous, porous, crushed fossils			
2047	2051	Light Gray Limestone, calcite crystals throughout, solution fracturing, fossiliferous			
2051	2064	Light Gray (yellowish tint) Limestone, bryozoans fossils packed			
2064	2074	Light Gray (yellowish tint) Limestone, bryozoans fossils packed, solution fractures and calcite crystals			
2074	2120	Light Gray Limestone, some brach fossils, vuggy 2074 - 2076 solution fractures 2077-2080 becoming laminated 2081-2083 vuggy Light Brown, no solution fractures 2084.5-2089 Vuggy, small to large (1.25") brachiopods, more abundant, Light Brown 2089 - 2092 Medium Gray Limestone, solution fractures, less fossils, calcite crystals 2092-2094 Vuggy, small to large (1.25") brachiopods, more abundant, Light Brown 2094-2012 Light Gray Limestone, crinoid and brachiopod fossils, large calcite crystals, solution fractures, some lamination 2100-2105 2012-2120 sparse brachiopod fossils, smaller calcite crystals	Muldraugh		
2120	2125	Light Brown Limestone, bryozoans and brachiopod fossils, slightly porous, grading to Medium Gray ~2123			
2125	2132	Light Gray Limestone, solution fractures, some braciopod fossils			
2132	2143.5	Medium Gray, micritic Limestone, laminated solution fractures 2139 large hollow with calcite crystals			
2143.5	2158	Medium Gray/Brown fossiliferous Limestone, bryozoans and brachiopods (packed), calcite crystals, porous			
2158	2161	Light Gray Limestone, crinoid stems, large brachiopods, solution fractures			
2161	2175	Medium Gray micritic Limestone, laminated, solution fractures			
2175	2253	Medium Gray micritic Limestone, laminated solution fractures, calcite seams and nodules, no solution fractures 2195 very brittle 2248 very brittle			
2253	2270	Medium Gray Limestone, sparse brachiopod fossils, pyritized fossils, calcite crystallization, fossils becoming more abundant at 2256'			
2270	2285	Medium Gray, micritic Limestone, Dark Gray cherty nodules and layers, laminated			
End of Test Hole					

Scepter, Inc.
Bicknell, IN
Class I Well Injection Well IW-I



Proposed Class I Injection Well IW-1 Schematic
Based on corehole data

Figure F-2

ATTACHMENT F. MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA

F.1 Cross sections and structure contour maps adequate to describe the regional geology of the area, including especially any faults

A Geologic Cross Section (east-west) from the Illinois/Indiana state line to Green County, Indiana is provided as **Figure D-1,** showing the dip of the formations from land surface to 4000 feet below land surface (bls).

F.2 Cross sections of site-specific geology, including any faulting in the AOR

No known faults exist in the AOR. **Figure B-4** shows the location of the Wabash Valley fault system located southwest of the proposed site.

F.3 Geologic description of confining zone (including lateral extent, lithologies, thickness, permeabilities, porosities, extent of natural or induced fractures, etc.)

The confining units for the injection well range from the Beech Creek Formation of the Stephensport Group at approximately 800 feet below land surface (bls) to the base of the New Albany Shale at approximately 2,300 feet bls. The Beech Creek is of Mississippian Age and the New Albany Shale is found along the Mississippian/Devonian Age boundary.

Detailed analysis of the Formations and Groups indicate that several may be utilized as confining units for the purpose of the Injection Well. These Formations and Groups are described below.

The Beech Creek Limestone is characterized as a gray biomicritic limestone approximately 10 feet thick in the subject area. Characteristic fossils include large crinoids, brachiopods and blastoids.

The Beech Creek is underlain by the West Baden Group, which is made up of the Cypress Formation, the Reelsville Limestone, Sample Formation, the Beaver Bend Limestone and the Bethel Formation. The Cypress Formation is comprised of thin bedded, fine grained sandstone, cross bedded sandstone, green-gray and red-brown shale and siltstone. This formation is fine grained and conducive as a confining unit and is approximately 60 feet thick in the subject area. The Reelsville Limestone is a fossiliferous limestone which is approximately 5 feet thick. The Sample Formation is made up of shale and thin-bedded and cross-bedded sandstone. It is approximately 35 feet thick in the subject area. This formation is adequate as a confining unit. The Beaver Bend Limestone is approximately 10 feet thick in the subject area and is comprised of fossiliferous to oolitic to biomicritic limestone. The Bethel Formation is approximately 30 feet thick in the subject area and is comprised of clayey shale, sandstone and thin coal beds. This formation is adequate as a confining unit.

The West Baden Group is underlain by the Blue River Group, which is made up of the Renault and Aux Vases formations and the St. Genevieve and St. Louis limestones. This group is primarily made up of carbonate rocks and is therefore not utilizable as a confining unit. The Blue River Group is approximately 500 feet thick in the subject area and extends from approximately 1280 feet to 1780 feet bls.

The Blue River Group is underlain by the Sanders Group, which is made up of the Salem and Harrodsburg limestones and the Muldraugh Formation. The Salem Limestone, a medium to coarse grained limestone made up primarily of microfossils, is porous and is approximately 175 feet thick in the subject area. The base of the Salem Limestone is highly recognizable by the presence of the Somerset Shale Member. The Harrodsburg Limestone is a well-cemented, highly fossiliferous limestone which has a layer of geodes and chert near the base of the unit. This unit is approximately 125 feet thick in the subject area and would be acceptable as a confining unit. The Muldraugh Formation is approximately 300 feet thick in the subject area and is primarily made up of limestone, dolomite, shale and siltstone.

The Sanders Group is underlain by the Borden Group, which is made up of the Edwardsville and Spickert Knob formations and the New Providence Shale. The Edwardsville Formation is primarily made up of siltstone, sandstone and sandy shale and is approximately 75 feet thick in the subject area. The Spickert Knob Formation is absent at the subject area. The New Providence Shale is primarily shale and claystone with interbedded ironstone lenses. This layer is approximately 75 feet thick in the subject area and would be acceptable as a confining unit.

The Borden Group is underlain by the New Albany Shale, which is primarily made up of carbon-rich shale, with lesser quantities of dolomite and dolomitic quartz sandstone. The New Albany Shale is approximately 225 feet thick in the subject area and is found from approximately 2530 feet to 2680 feet bls. This unit is utilized for production and this would be a highly effective confining unit.

F.4 Geologic description of injection zone (including depth, lateral extent, lithology, thickness, permeability, porosity, presence of natural or induced fractures, etc.)

The permeable units for the injection well range from the Muscatatuck Group (Middle Devonian) at approximately 2680 feet bls to the base of the Maquoketa Group at approximately 3930 feet bls. The Muscatatuck Group is of Middle Devonian Age and the Maquoketa Group is of Ordovician Age.

Detailed analysis of the Formations and Groups indicates that several may be utilized as permeable units for the purpose of the Injection Well. These Formations and Groups are described below.

The West Baden Group, which is made up of the Cypress Formation, the Reelsville Limestone, Sample Formation, the Beaver Bend Limestone and the Bethel Formation. The Cypress Formation is comprised of thin bedded, fine grained sandstone, cross bedded sandstone, green-gray and red-brown shale and siltstone. This formation is fine grained. The Reelsville Limestone is a fossiliferous limestone which is approximately 5 feet thick. The Sample Formation is made up of shale and thin-bedded and cross-bedded sandstone. The Beaver Bend Limestone is approximately 10 feet thick in the subject area and is comprised of fossiliferous to oolitic to biomicritic limestone. The Bethel Formation is approximately 30 feet thick in the subject area and is comprised of clayey shale, sandstone and thin coal beds.

The West Baden Group is underlain by the Blue River Group, which is made up of the Renault and Aux Vases formations and the St. Genevieve and St. Louis limestones. This group is primarily made up of carbonate rocks, of which, the St. Louis Limestone contains interbedded layers of gypsum and anhydrite. The Blue River Group is approximately 500 feet thick in the subject area and extends from approximately 1280 feet to 1780 feet bls.

The Blue River Group is underlain by the Sanders Group, which is made up of the Salem and Harrodsburg limestones and the Muldraugh Formation. The Salem Limestone, a medium to coarse grained limestone made up primarily of microfossils, is porous and is approximately 175 feet thick in the subject area. The base of the Salem Limestone is highly recognizable by the presence of the Somerset Shale Member. The Salem Limestone may be utilized as an injection zone. The Harrodsburg Limestone is a well-cemented, highly fossiliferous limestone which has a layer of geodes and chert near the base of the unit. This unit is approximately 125 feet thick in the subject area. The Muldraugh Formation, which is primarily made up of limestone, dolomite, shale and siltstone, is approximately 300 feet thick in the subject area and extends from approximately 2080 feet to 2380 feet bls.

The Sanders Group is underlain by the Borden Group, which is made up of the Edwardsville and Spickert Knob formations and the New Providence Shale. The Edwardsville Formation is primarily made up of siltstone, sandstone and sandy shale and is approximately 75 feet thick in the subject area and extends from approximately 2380 feet to 2455 feet bls. This unit may be utilized as an injection zone. The Spickert Knob Formation is absent at the subject area. The New Providence Shale is primarily shale and claystone with interbedded ironstone lenses. This layer is approximately 75 feet thick in the subject area.

The Borden Group is underlain by the New Albany Shale, which is primarily made up of carbon-rich shale, with lesser quantities of dolomite and dolomitic quartz sandstone. The New Albany Shale is approximately 225 feet thick in the subject area and is found from approximately 2530 feet to 2680 feet bls.

The New Albany Shale is underlain by the Muscatatuck Group, which is made up of Middle Devonian carbonates of the North Vernon Limestone and the Jeffersonville

Limestone. The North Vernon Limestone is made up of dense, massive argillaceous dolomitic limestone and thin-bedded, highly fossiliferous limestone. The Jeffersonville Limestone is highly fossiliferous limestone and dolomite with varying quantities of chert. The Muscatatuck is approximately 200 feet thick in the subject area and extends from approximately 2680 feet to 2880 feet bls. This group may be appropriate as a permeable layer suitable for injection.

The Muscatatuck Group is underlain by the New Harmony Group, which is made up of Lower Devonian carbonates of the Backbone Limestone Formation. The Backbone Limestone is made up of medium to coarse-grained white limestone and is approximately 250 feet thick in the subject area.

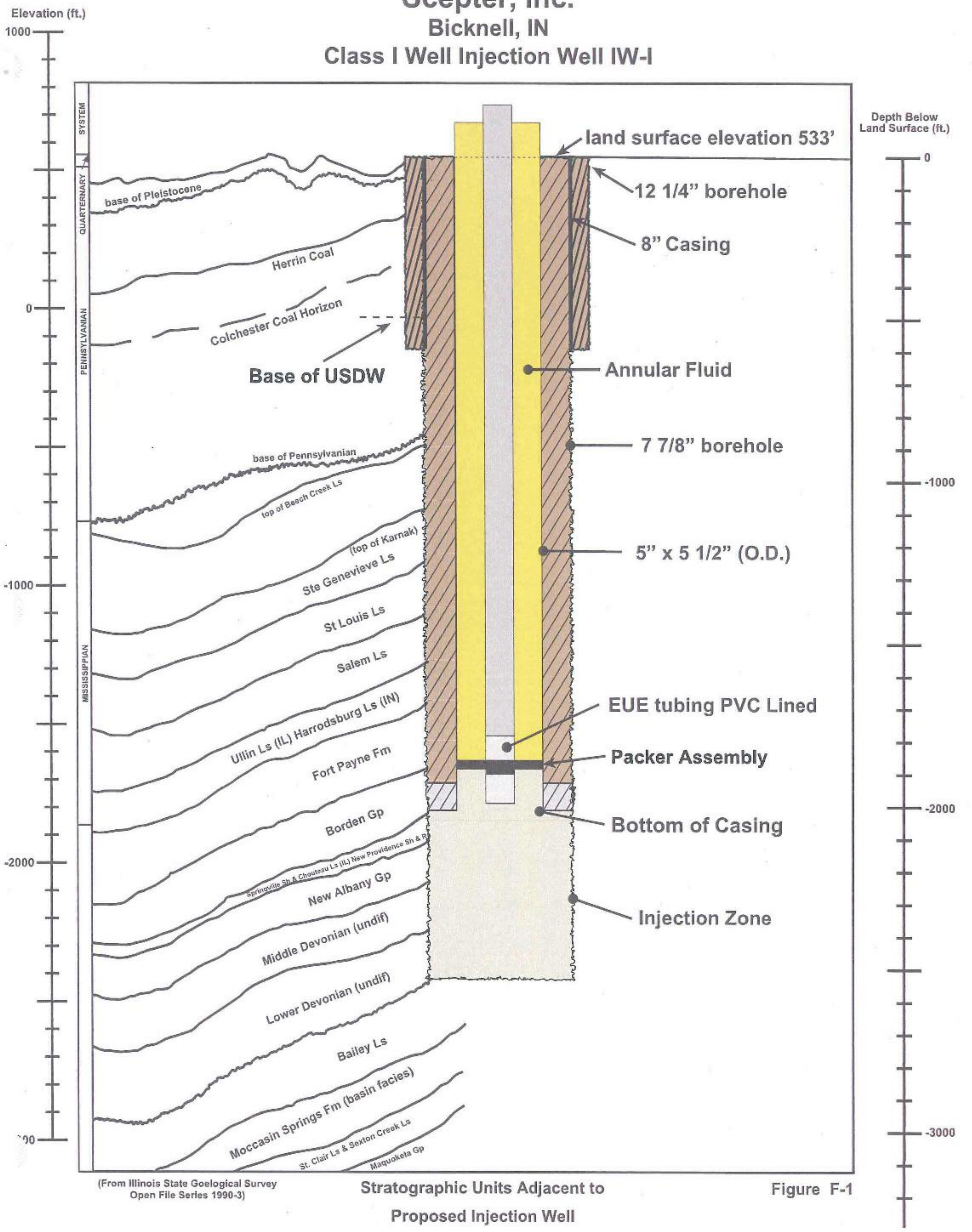
The New Harmony Group is underlain by the Bainbridge Group, which is made up of the Bailey Limestone, the Moccasin Springs Formation, the Salamonie Dolomite and the Sexton Creek Limestone. The Bailey Limestone is very fine-grained and may contain reef and bank facies. The Moccasin Springs Formation is made up of pink, green, yellow tan, gray, red and purple limestones. The top of the formation is dark-gray to black dolomitic shale interbedded with limestone. Dark red carbonates are characterisitic of the base of the formation. The Salamonie Dolomite is impure and fine grained limestone, dolomitic limestone and shale. The dolomite is coarse grained and vuggy. The Sexton Creek Limestone is an impure cherty dolomite or limestone, of which, the chert may comprise approximately 60-70 percent of the formation. The Bainbridge Group is approximately 450 feet thick in the subject area and extends from approximately 3130 feet to 3630 feet bls. This group may be appropriate as a permeable layer suitable for injection.

The Bainbridge Group is underlain by the Maquoketa Group, which is made up of the Brainard Shale, Fort Atkinson Limestone and Scales Shale. The Brainard Shale is gray to greenish-gray shale that may contain thin layers of limestone. The Fort Atkinson Limestone is crystalline limestone and dolomite. The Scales Shale is gray shale with thin beds of limestone.

F.5 Page-sized (8 ½" x 11") diagram showing well construction and corresponding site stratigraphy

Provided as **Figure F-1**. Site specific stratigraphy will be included after the test corehole has been completed in a revised Attachment F.

Scepter, Inc.
Bicknell, IN
Class I Well Injection Well IW-I



(From Illinois State Goelogical Survey Open File Series 1990-3)

Stratographic Units Adjacent to Proposed Injection Well

Figure F-1

ATTACHMENT G

ATTACHMENT G. DOES NOT APPLY TO CLASS I WELLS

ATTACHMENT H

ATTACHMENT H. OPERATING DATA

H.1 Estimated average and maximum injection rate and volume

The Scepter Restricted Type I non-hazardous waste industrial landfill has been operating since 1996. Currently the approximate acreage of the constructed (active open) area of the landfill is 9 acres. The majority of this acreage is covered by a temporary plastic cover to minimize infiltrate. The leachate generated by rainfall upon the completed and open area in calendar year 2007 was approximately 1.1 million gallons, a year when rainfall was above 5 inches below normal (45 inches). These 1.1 million gallons of leachate was collected and stored on-site, then either sent to the recycling facility to use for evaporative cooling or transported by truck to Ohio where the leachate was disposed in a Class I well.

The actual volumes generated since January, 2005 are as follows:

	Total (gallons)
2005	488,640
2006	1,190,121
2007	1,146,003
2008 (as of Sept)	1,547,698

The anticipated amount of leachate generated will be a function of rainfall, the total area of closed and covered landfill cells and the open (active) landfill cell area. The current permit allows the use of 22 acres to be used for landfill cells. Since the UIC permit is valid for 5 years, and the anticipated size of the landfill area at the initial time of permit approval (1st quarter 2009) would be about 9 acres, the amount of leachate anticipated at the start of the permit would be 1.9 – 2.3 MG/yr for years of normal rainfall and 5 inches and 10 inches above normal or approximately 50,000 gallons per every inch above the 45 inches of average rainfall (precipitation **Tables H-2**).

It should be noted that the volume of leachate generated is not linear and will be proportionately more during wet years. This is due to the fact that once the cap is saturated a greater portion of the additional rainfall will seep through the cap than evapo-transpirate or run off.

Actual Leachate Volume Generated, 2005-2008 (as of September, 2008)							
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**
2005	60,300	61,600	70,800	48,748	88,297	19,421	24,698
2006	44,545	59,784	248,144	172,625	73,860	77,589	21,705
2007	259,603	253,594	121,496	81,415	78,469	63,838	0
2008	259,784	158,555	143,175	242,240	194,975	148,702	188,768

Actual Leachate Volume (Continued)						
	Aug	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
2005	23,464	9,831	20,756	26,990	38,735	488,640
2006	4,704	7,926	4,591	205,244	269,404	1,190,121
2007	15,405	27,390	13,460	9,063	222,270	1,146,003
2008	142,216	69,283	?	?	?	1,547,698

The "worst case scenario" regarding leachate generated would be rainfall of 15 inches above normal (45 inches per year) and some expansion of the landfill for the next five years of the permit. If it is assumed that 3 million gallons of leachate were generated that would average a 6 gallon per minute pumping rate of leachate 24 hours per day, 365 days per year. Considering rainfall events are episodic intermittent pumping should equal the maximum pumping rate of the sump pump (25 gpm) plus a minimum of 25% or approximately 35 gpm for short periods of time.

The estimated average and pumping rates requested would be in the following ranges:

- Annual average pumping rate 2 to 3 gallons per minute
- Annual maximum pumping rate anticipated 6 gallons per minute
- Maximum monthly pumping rate 12 gallons per minute
- Maximum 24 hour pumping rate 50 gallons per minute

H.2 Estimated average and maximum injection pressures

The maximum injection pressure will depend upon the maximum flow rate. Injection tests of the corehole and actual borehole of the injection well prior to submission of the operating and monitoring permit will aid in assessing the flow vs. pressure relationship. At this time, prior to drilling and testing of the on-site continuous statigraphic corehole - only an estimate of injection rates and corresponding well head pressures can be calculated based on other similar Class II brine injection wells in the area. It is estimated that there are 43 Class II wells in the Knox County, Indiana area (Indiana, DNR). The injection rates and pressures vary and have been observed to range from no ("0" psig) well head pressure (gravity flow) to maximum permitted pressures of 400 psig for well completed in 800-2500 feet below land surface. Although the average flow rate over a year will likely average less than 5 gallons per minute, a maximum flow rate of 50 gpm is requested to accommodate short periods of intense rainfall when maximum leachate generation will occur. Currently the leachate sump pump is capable of pumping 25 gpm and the pump does run continuously during periods of intense rainfall. The storage capacity (3-10,500 gallon tanks) provides for 21 hours of continuous pumping form the sump in periods of heavy rainfall.

Actual injection rates and pressures will be obtained from formation tests conducted in October and November in the continuous core hole. These tests will obtain the static head pressure of the proposed injection interval, and actual pumping rates and corresponding pressures using stradle packers and hook-wall packers.

These actual permeability test data results will be submitted as a permit modification addendum within two weeks of borehole testing for EPA's review and evaluation.

Based on other injection wells in the area, and assuming at 2500 foot depth the maximum requested well head pressure is 300 psig. The maximum requested injection rate and pressure will be negotiated in the operating permit.

H.3 Source(s) of waste (brief description of industrial process(es) which produce the waste)

Scepter, Inc generates salt cake from the aluminum recovery process. The attached **Figure H-1** is a simplistic flow diagram that represents the process by which the salt cake waste is generated. The process begins by charging aluminum scrap (including painted and lacquered materials, shredded aluminum parts, turnings, borings, etc) or dross along with salt flux material (NaCl and KCl) into rotary tilt furnaces. No milling, shredding or crushing of the scrap dross is preformed. The salt flux is charged into the furnaces at ratios of 0% to 25% of the feed charge rate into the rotary tilt furnace. The flux material combines with contaminants in the aluminum and floats to the surface, trapping the impurities and preventing molten aluminum oxidation. The flux agents and the impurities form a "salt cake" which is physically removed from the surface of the molten metal by decanting and placed in nearby containers inside the plant where it is allowed to cool, before being transported to the landfill.

By the nature of the generation process, salt cake is gray/black solid with no free liquid or organic contaminates such as PCB's, TCLP organics, herbicides, pesticides, etc. Therefore the material has no flash point. The pH range of 50/50 water to solids mix is typically between 9 and 10.5. The major constituents of salt cake are:

Aluminum Oxides	30 - 50%
Sodium Chlorides	10 - 50%
Potassium Chlorides	10 - 50%

Additionally, baghouse dust is also disposed of in the landfill. This is the collected particulate from the rotary furnaces and its primary constituents are similar; however this material comprises of only about 10% or less of the material disposed in the landfill.

The material is disposed of in Scepter's landfill which is dedicated to receive waste from Scepter's secondary aluminum recovery process. The landfill is constructed with a liner/leachate collection system. The water currently disposed is leachate that is collected in the leachate collection sump from this landfill.

H.4 A representative waste and analysis (including all major constituents and, for hazardous wastes, all hazardous constituents and characteristics)

Table H.1, attached, shows the representative concentrations of the waste to be injected in the Class I non-hazardous waste well. The constituents listed are the same as from the existing landfill monitoring section of the permit addressing the leachate. The main constituents of the waste (by volume) are sodium, potassium chlorides, dissolved nitrogen and ammonia. The pH is about 10-10.5 (S.U.). The waste stream has moderate total dissolved solids (TDS, 73,900 – 232,000 mg/L) however the total suspended solids (TSS) are very low (6.6 to 334 mg/L).

Leachate concentrations fluctuate depending upon the amount of dilution from seasonal rainfall variations.

H.5 Plans for corrosion monitoring, if the waste is corrosive

The pH of the waste stream is about 10-10.5 (S.U.'s) and is not expected to react in a detrimental manner with the well piping or the carbonate formations. Leachate will be transported on land surface through chemically inert pipe, such as the surface PVC lined steel pipe and 2-7/8" EUE injection tubing which is also PVC lined the entire length in the injection well. This tubing has performed well with the corrosive brine waters used in the Class II injection wells completed at similar depths.

A corrosion inhibiting fluid will be placed in the annular space between the tubing and 5½ inch J-55 steel tubing to protect the outer tubing and inside casing. The corrosion inhibiting fluid (Baracor ™ or equivalent) will be pressurized above the maximum permitted injection pressure and continually monitored for changes in pressure, indicating a leak in the tubing, packer or casing. In the event of a leak, procedures to correct the problem are included in Attachment O, plans for well failures.

Some of the pipe fittings at above land surface may not be PVC lined but in this area the fittings can be visually inspected for leaks and will be located on a concrete bermed pad for inspection and retention in the event of a piping leak.

Scepter Bicknell IN Landfill Facility
Annual Leachate Analytical Results
February, 2007 through April, 2008

Chemical Parameter	2/3/2005	4/16/2005	4/27/2005	5/9/2005	5/26/2005	9/27/2005	4/2/2007	4/14/2008
Organic Parameters								
2,4,6 Trichlorophenol .2 mg/L				<0.01		<0.01		
2,3 - dichloroaniline								
o-cresol 200 mg/L								
p-cresol 200 mg/L								
Total Cresol 200 mg/L								
Acetone				0.453		0.256		
bis (2-Ethylhexyl) phthalate						0.007		
phenol						0.019		
N-Nitrosodimethylamine				0.015		0.012		
Methl-Ethyl-Ketone				<0.10		<0.10		
Metal Parameters								
Antimony								
Aluminum								
Arsenic			1.111	<0.50		0.0935	<0.20	<1.0
Boron								
Barium 10 mg/L				0.667		0.291		<1.0
Beryllium								
Cadmium limit 10 mg/L	0.316		9.561	0.165		0.0905	0.130	<0.10
Chromium 5.0 mg/L	<0.20			<0.25		<0.02	<0.10	<0.50
Copper	147		82.003	111	78.4	101	142	24.3
Iron								
Lead			<0.008	<0.050		<0.0040	<0.02	<0.5
Manganese								
Mercury 0.2 mg/L			0.033	0.0002		<0.0002		
Molybdenum			2.215					
Nickel	8.16		6.075					
Potassium			54,633					
Selenium 1.0 mg/L			0.172	<0.25		<0.50		<1.0
Silver 5.0 mg/L				<0.025		0.0146		<.5
Sodium				54,900		23,100		5080
Thallium								
Zinc	92.4		173.454	136		33.4		6.02
Conventional/Other Parameters								
pH				10.36	10.25	10.05	10.3	9.6
BOD				<4		<4		32.1
COD				1730		770		4500
Cyanide				0.396		0.080		0.15
Undistilled Fluoride				24.6				
Nitrogen, Total			14,470					
Nitrogen (Total Kjeldahl)			14,110					
Ammonia Nitrogen		8,600	9,189	12,000	107*	1,620	5,340	1560
Nitrate/Nitrite			360					
Total Phenols								
Total Phosphate			9					
Phosphorus			4					
TDS				232,000	179,000	105,000	173,000	73,900
TSS				334		224	69.6	6.6
Total Solids			239,800					
Sulfate								
Sulfide				<0.10		<0.10		
Chloride				121,000	79,200	41,400	82,000	38,400
Oil & Grease								
Fluoride								21.4
PCB's			<.002					

one odd reading

All analyses are expressed in mg/l except pH. pH is expressed in Standard Unit (S.U.).

no 5.9

Table H-1

Indiana State Climate Office <iclimate@purdue.edu>

Indiana State Climate Office
<iclimate@purdue.edu>
09/23/2008 01:48 PM

To Thomas_Kwader@URSCorp.com
cc
Subject Re: Fw: Climate Data Request in email format

Dr. Kwader,

The column on the right is the standard 30-year normal precipitation, by month,
for Freelandville, IN. The yearly normal is the last value in the right column.

30 Year Precipitation Average

Station: (123104) FREELANDVILLE, IN
Element: Precipitation (in)

Jan	2008	2.63	2007	4.98	1971-2000	2.53
Feb	2008	3.44	2007	3.12	1971-2000	2.85
Mar	2008	8.70	2007	2.78	1971-2000	3.66
Apr	2008	4.30	2007	2.84	1971-2000	4.44
May	2008	7.97	2007	1.91	1971-2000	5.53
Jun	2008	6.69	2007	4.47	1971-2000	3.62
Jul	2008	4.25	2007	1.32	1971-2000	4.96
Aug	2008	1.43	2007	4.96	1971-2000	3.03
Sep	2008	4.84	2007	1.97	1971-2000	3.10
Oct	2008	-9.99	2007	3.58	1971-2000	3.61
Nov	2008	-9.99	2007	1.75	1971-2000	4.43
Dec	2008	-9.99	2007	5.74	1971-2000	3.10
Tot	2008	-9.99	2007	39.42	1971-2000	44.86

2003-2008 Monthly/Annual Climate Summary

Station: (123104) FREELANDVILLE, IN
From Year 2003 To 2008
Total Precipitation (in)

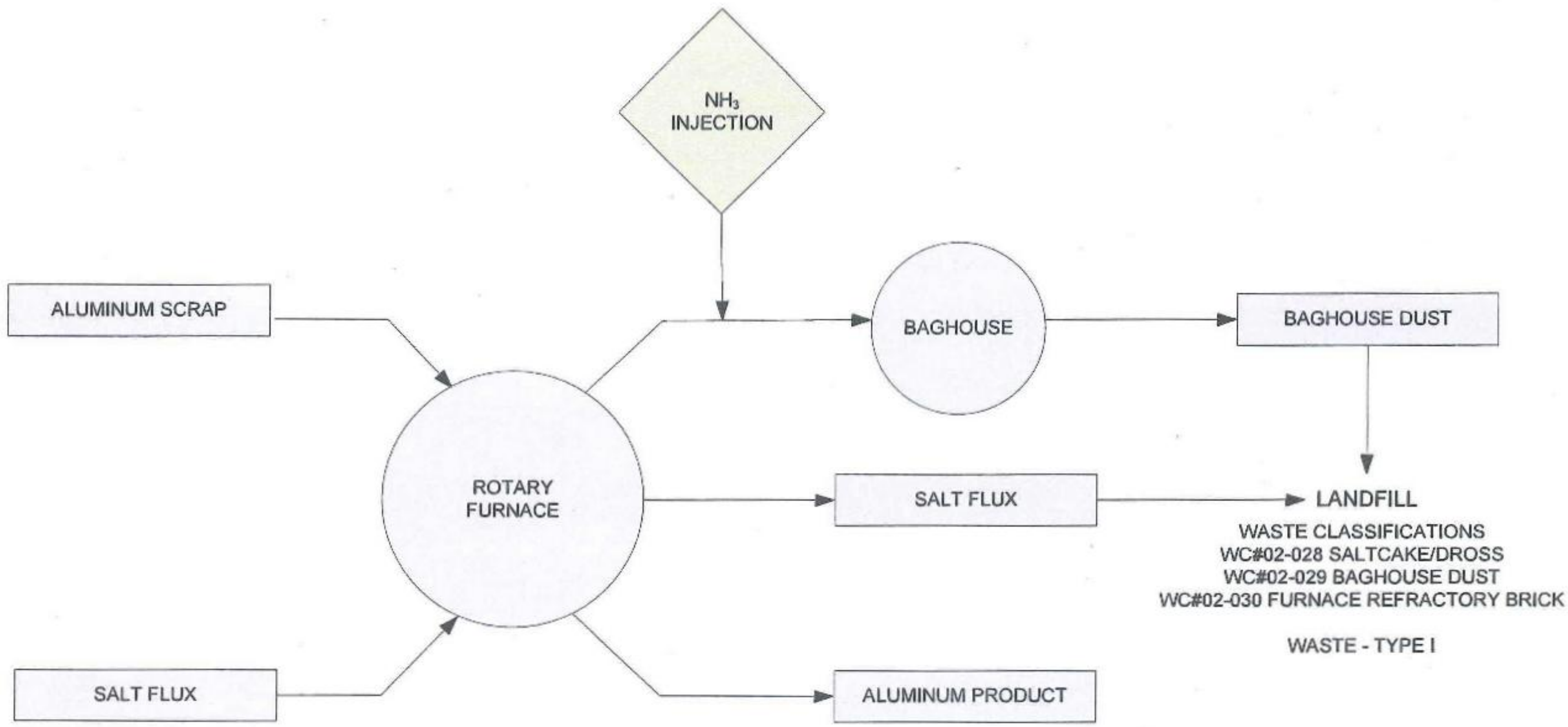
Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
2003	1.29	4.14	2.65	3.42	7.30	3.69	5.38	4.74	5.79	2.06	5.52	1.99	47.97
2004	4.81	0.85	2.80	1.14	7.76	1.63	8.64	4.57	0.14	8.44	4.07	2.38	47.23
2005	7.80	1.97	1.74	3.08	2.39	4.39	4.37	6.12	5.10	0.82	5.28	2.42	45.48
2006	2.70	1.39	8.18	4.01	4.26	3.16	1.45	3.68	4.72	5.09	4.17	5.46	48.27
2007	4.98	3.12	2.78	2.84	1.91	4.47	1.32	4.96	1.97	3.58	1.75	5.74	39.42
2008	2.63	3.44	8.70	4.30	7.97	6.69	4.25	1.43	-9.99	-9.99	-9.99	-9.99	-9.99

'-9.99' = missing

Let me know if you have any questions.

--
Joseph Mays
Data Specialist
Indiana State Climate Office
web: www.iclimate.org

Table H-2



GENERAL PROCESS SCHEMATIC – ROTARY FURNACE
SCEPTER, INC., BICKNELL INDIANA

FIGURE H-1

ATTACHMENT I

ATTACHMENT I. FORMATION TESTING PROGRAM

Procedures to verify depth of lowermost USDW, if needed

Depth to the lowermost portion of the underground source of drinking water (potable) is anticipated to be in the 500-600 foot range. Water samples obtained using a 3 inch RediFlo or Grundfos submersible pump will be attempted at 600, 800, 1,100, and 1,300 foot intervals (bls) using a hook wall packer, or pumped straight from the drill tubing during the drilling of the corehole. Samples will be field analyzed for pH, conductivity and salinity. Samples will be retained for laboratory analyses of chloride and TDS. Analyses will be compared with the Class II drinking water standards for chlorides and TDS. It should be noted that representative formation sample depend on the permeability of the zone(s) tested. Shales (tight formations) may not yield sufficient quantities of formation fluid to flush the drilling water from the open portion of the hole.

Although there are some Class II injection wells in the area injecting into formations as shallow as 750 feet below land surface (bls), a minimum depth for injection at this site will be at least 1,300 feet or more to insure a sufficient amount if hydrologic separation is present between the USDW and the injection zone.

The rational for selection of the injection zone is to select the most permeable zone below 1,300 feet and inject into a sufficiently thick zone to minimize the pressure core of influence (PCOI) for the area. Also the average injection rate measured over a year is on the order of 3 to 4 gallons per minute (1.5 – 2 million gallons per year) and not expected to change significantly over the life of the permit. Considering data from other operating Class II wells in the area, injecting a similar Type of brine waste at these depths rates of 400 barrels per day is not uncommon (12 gpm). This proposed well is relatively small in comparison.

I.1 Procedures to obtain extrapolated formation pressure in porous and permeable zones within approximately 500 feet of the top of the injection zone (non-hazardous wells)

Pore pressures in the USDW, top and bottom are scheduled to be conducted during drilling of the continuous corehole (September – October, 2008). The methodogy includes grouting a 6 inch casing to a depth of 250 feet below land surface and measuring the static water level after a few feet of open hole has been drilled and allowed to set overnight. This procedure will be repeated after core has been obtained in the 600 and 800, 1,100 and 1,300 foot depths, where significant confining units are observed in the core. Water levels will be obtained periodically as the borehole is advanced. If drilling mud is used, the density will be measured and water level adjusted accordingly to the equivalent specific gravity of the freshwater aquifer (USDW).

I.2 Sampling and analysis procedures for formation fluid of 1. The first aquifer overlying confining zone (hazardous and non-hazardous waste wells). 2. The

injection zone (non-hazardous waste wells) or injection interval (hazardous waste wells), and 3. The containment interval (hazardous waste wells only)

During the continuous coring operations water levels will be attempted to be measured in the USDW, base of USDW, beneath the USDW and in the prospective injection zone(s). Water samples will be obtained by pumping directly from the drill string with the bottom 5 feet of corehole open or by setting either a packer assembly in the open portion of the corehole where a 5 to 10 foot interval is hydraulically isolated using two inflatable packers (5-10 foot apart) and water is pumped from the drill string using a nominal 3 inch submersible pump (RediFlo-2 or Grundfos). The depth capability of these small pumps is approximately 200 feet. Beyond 200 feet a bailer or electronic sampling device may be used if necessary.

I.3 Cores and laboratory core testing for confining and injection zones (For non-hazardous waste wells, a minimum of one 30-foot core of the confining zone and one 30-foot core of the injection zone are required). For hazardous waste wells where injection of restricted wastes is proposed, one or more cores of the containment interval will also be necessary

The corehole currently being drilled is a continuous core with the following core diameter retrieved:

0-1250 feet	PQ – 2-7/8 inch diameter
1250-2500 feet	HQ – 2-1/2 inch diameter
2500 feet +	NQ – 1-7/8 inch diameter

It is anticipated the base of the USDW will be 500-600 feet below land surface. All of the core from land surface to total depth will be characterized as: confining, semi-confining, moderately permeable or high permeability. Visual inspection of the core beyond 500 feet will note all of the confining zones encountered. The thickest (>30 ft) and lowest permeability zone will be separated and discrete representative zones sent to a certified geotechnical laboratory for testing including lithologic description, density, bulk porosity, and permeability. The core will also be inspected for the presence of existing "old" fractures and noted in the field book. Any non drilling induced fractures present below the USDW, will be noted and identified in a summary table of the final report.

Since this is a continuous core, samples of prospective injection zones will also be noted in detail beyond this 1250 foot zone. Carbonate zones showing well developed secondary porosity and/or natural fractures will be noted in the field book, photographed and listed in a summary table of the final report. A thirty (30) foot section of the prospective injection zone will be identified and representative sections of the core sent to a certified geotechnical laboratory for testing including lithologic description, density, and bulk porosity.

Permeability testing of the prospective injection zone(s) will be performed directly in the corehole using a straddle packer (5 to 10 foot spacing) or hook-wall packer (single packer–testing the borehole section below the packer setting). In situ permeability testing will include injection of water in the packed off zone measuring flow (gpm) and pressure (psig), holding flow constant, for a minimum of 30 minutes per test. "Exceptional" zones (above 5 gpm) will be step tested for a minimum of 5 minutes per step at increasing volumes, while recording pressure.

I.4 Determination of fracture closure pressure of injection zone (non-hazardous wells) or injection interval (hazardous wells)

The formation pore pressure will be measured by directly measuring the static water level in the drill string whenever possible. Water levels will be measured over a 10 minute interval to demonstrate that the water level is not changing or the rate of change will be recorded to adjust the conditions representative of the formation. If the well is flowing the well head will be shut in and measured with a calibrated gauge.

I.5 Injectivity/fall-off testing of injection zone/interval, including interference testing if multiple wells are proposed

In addition to the step injection testing mentioned in I.4, injectivity fall off testing will be measured after step injection test indicate the upper end of injection rate possible. Using an injection rate of either 100 psi (well head pressure) or 50 gpm which ever is reached first, this rate will be sustained for a minimum of 30 minutes and corresponding pressure will be measured after the pumping has ceased for 30 minutes or until the pressure has stabilized (for at least 10 minutes). Interference from multiple wells or other wells in the area are not within the area of influence.

I.6 Depth to Lowermost USDW - Water Quality Samples – Field and Laboratory Results

During the coring of the upper portion of the borehole, three intervals were pumped to obtain formation water quality samples, at 475, 784 and 1,034 feet below land surface (feet bls).

The following results were obtained from these formation water samples:

Date	Depth (feet bls)	Gallons Pumped Prior to Sample	Conductivity (mS/cm) Field Measurement	Chlorides (mg/L) Lab Measurement	TDS (mg/L) Lab Measurement
9/22/08	475	15	-	134	424
9/25/08	784	1,140	14.58+	5,460	8,390
9/28/08	1,034	2,860	14.98+	5,320	10,600

- = field unit not able to be properly calibrated
+ = minimum values, still rising at end of test

It should be noted that the pump was installed to approximately 250 feet inside the temporary casing and pumped for a considerable period of time. These values are considered a "minimum" value due to the formation water being diluted to some unknown degree with the potable quality drilling water. Generally the conductivity was still rising at the end of the pumping, indicating the maximum level had not been reached. Additional pumping and sampling data are presented in **Appendix D**.

Based on the above water quality information and review of the core data, the depth of the lowermost USDW (depth where formation pore water >10,000 mg/L) at this site is estimated to be at or below 1,000 feet bls.

Refer to NOD
Sent 4/21/09
stating that if USDW is around 1,000 ft need updated PSA

I.7 Geotechnical Laboratory Results of Selected Core Intervals

Four sections of the continuous core were sent to Bowser-Morner Inc., Dayton, Ohio on November 26, 2008 for laboratory analysis to determine the core's following geotechnical properties:

ASTM D 854, "Specific Gravity of Soils"

ASTM D 5084, "Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Parameter"

EM-1110-2-1906, "Unit Weight, Void Ratio, Porosity and Degree of Saturation (Appendix II)"

Selection of the cores to be analyzed was based on their stratigraphic position in the core hole in relation to the prospective injection zone (1,880 – 2,160 feet). Two of the cores above this zone were selected to verify that the proposed injection zone had substantial confining units separating the USDWs and coal seams (0-600 feet) from the proposed injection interval.

The two low-permeability confining zone cores selected were as follows:

Interval Depth (feet bls)	Sample Description
1,543 – 1,545	Limestone – brown, very fine grain, microcrystalline cement, slightly dolomitic; most grains of indeterminate origin, trace fossils observed, trace pyrite. Rock is dense with no observed pore development.
1,668 – 1,670	Limestone – brown, fine to very fine grain, trace very coarse, microcrystalline cement; grains are finely broken fossils with large coral fossils replaced by chert. Rock is dense with no observed pore development.

The laboratory data confirmed the low permeability of these two cores, measured at 5.1×10^{-10} and 6.2×10^{-10} cm/sec for the intervals at 1,543 – 1,545 feet and 1,668 – 1,670 feet bls, respectively. The low permeability is also confirmed by the physical appearance in the hand specimens and the neutron and density borehole geophysical logs. Laboratory porosity of these two intervals was measured between 1.8 to 2.3 percent.

Two additional, more permeable, cores of the proposed injection zone were also analyzed at the laboratory for the same geotechnical properties. The lithology of the two cores selected from the proposed injection interval is described as follows:

Interval Depth (feet bls)	Sample Description
2,016 – 2,018	Limestone – gray, medium to coarse grain, microcrystalline cement; grains are ooids and fossils. Poorly developed intergranular porosity. Trace secondary calcite in pores.
2,044 – 2,046	Limestone – gray, fine to coarse grain, microcrystalline cement; grains are superficial ooids and fossils. Moderately well developed intergranular porosity. Secondary calcite crystals and/or gypsum filling some pores.

Permeability tests measured 4.9×10^{-7} and 9.7×10^{-7} cm/sec for the intervals 2,016 – 2,018 feet and 2,044 – 2,046 feet, respectively. These results are consistent with hand specimen observations showing numerous fossils (ooids, brachiopods, bryozoans, etc), hook-wall injection packer test results and borehole geophysical logs. Porosity of these two cores was approximately 10-11% based on the laboratory and borehole geophysical logs for these two intervals.

The complete geotechnical laboratory report is provided in **Appendix E.**

I. 8 Hook-Wall Injection Packer Testing

Packer test intervals were selected based on visual examination of prospective receiving zones in the continuous core retained on-site. Criteria included a confining zone below the lowermost coal seams and USDW (water quality data indicating a TDS of greater than 10,000 mg/L). Although these criteria appeared to be met at the depths of 650-700 feet, and based on other gas production zone intervals in Knox County, the target receiving zone was estimated to be below 1,000 feet bls. The prospective injection interval includes an effective confining unit to assure that the injection zone is adequately confined. Data from nearby oil and gas wells also indicate that the injection zone would probably be above 2,500 feet since less than 5% of the current wells produce gas or injected brine waste below 2,500 feet.

Although a number of prospective injection zones exist between 1,200 and 2,000 feet at the site, the core indicated significant confining units at the 1,500-1,700-foot interval (two cores were laboratory tested at $>10^{-10}$ cm/sec in this interval, at 1,543 and 1,668 feet), and the 1,900 to 2,200-foot interval appeared to have the most promising receiving zone(s).

The volume of brine waste historically generated by Scepter Inc., to be injected ranged from 1-2 million gallons per year, which equates to about 2-4 gallons per minute (gpm) continuously (yearly basis). However, waste volumes vary tremendously with rainfall amounts. Volumes of up to 50 gpm would be desirable if the formation(s) were capable of handling these volumes for short periods of time to accommodate periods of heavy rainfall.

Ten (10) hook-wall injection packer tests were conducted at depths between 2,087 and 2,285 feet at injection rates of 14 gpm to 35 gpm and wellhead pressures ranging from 40 to 105 psi. The static water level was measured at 5.5 feet below ground level, before start of the injection tests. Injection intervals ranged in length from 55 feet to 175 feet. Each interval tested received potable water for a period of 30 to 50 minutes. The volume of potable water injected for each test ranged from 420 gallons to 1,280 gallons. Normalized wellhead pressure (gpm/psi) stabilized between 5 to 25 minutes, with most tests stabilizing at 10 minutes with little or no additional wellhead pressure buildup after 5-10 minutes of injecting. Photographs of the hook-wall packer and test equipment are shown in **Appendix J**.

Injection Test Results

Ten (10) hook-wall packer tests were conducted at four (4) intervals in prospective injection zones, as follows:

Date	Interval	Test #	Depth (feet bls)	Zone Length (ft)	Minutes	gpm*	psi*	gpm/psi*
10/17/08	1	1A	2,087-2,175	88	50	16.7	75	0.22
10/17/08	1	1B	2,087-2,175	88	36	26.9	85	0.32
10/17/08	2	2A	2,000-2,175	175	40	14.0	55	0.25
10/17/08	2	2B	2,000-2,175	175	40	21.3	67	0.32
10/17/08	2	2C	2,000-2,175	175	40	32.6	82	0.40
10/20/08	3	3A	2,230-2,285	55	30	14.3	68	0.21
10/20/08	3	3B	2,230-2,285	55	30	19.1	72	0.27
10/20/08	4	4A	2,175-2,285	110	30	14.3	40	0.36
10/20/08	4	4B	2,175-2,285	110	30	19.5	53	0.37
10/20/08	4	4C	2,175-2,285	110	30	35.0	84	0.42

* This value is the last reading, and is believed to be most representative of the interval.

Was there any [illegible] [illegible] in the [illegible]

The hook-wall packer test consisted of a single inflatable packer, mechanically opened (sealed) against the borehole wall by twisting and pushing-pulling the drill rod. Fluid was injected beneath the packer and allowed to flow into the open hole below the packer to total depth of the borehole at that time. Packer tests were run on two separate occasions, October 17, 2008 (2,000-2,175 feet) and October 20, 2008 (2,175-2,285 feet).

During each day of the injection testing, the open hole was divided into intervals for testing (October 17, two intervals [5 tests] and October 20, two intervals [5 tests]). Packer tests were conducted using a recirculating centrifugal pump turned by a power takeoff (PTO) on the drilling rig. The PTO was equipped with a transmission that enables the pump to increase speed (gallons per minute) or increase pressure (psi) as needed. The bypass of water through a valve allowed water to flow back to the pump intake pickup sump, which could be manipulated to increase or decrease flow to hold the flow at a rate constant as the pressure changed during the test. The capacity of the pumping system ranged from 0-40 gallons per minute (gpm) and pressure from 0 to 100+ pounds per square inch (psi).

All gauges were calibrated by the gauge manufacturer and checked in the field with a second similar gauge or actual flow measurements in a calibrated container over time.

Appendix F is a summary of the Hook-Wall Packer Tests results. **Appendix G** is a copy of the field notebook, which contains the actual pump test data worksheets.

I.9 Borehole Geophysical Log Data Interpretation

On October 21, 2008 after the injection packer testing was completed, borehole geophysical logs were run on the open portion of the borehole.

The suite of logs run by Weatherford International included the following:

Log	Depth (feet bls)	Steel Casing (0-1330 feet)
Natural Gamma	0-2,286	Open hole interval
Induction, Medium and Deep	1,330-2,286	Open hole interval
Compensated Neutron	1,330-2,286	Open hole interval
Compensated Density	1,330-2,286	Open hole interval

The natural gamma log, the only log run that is capable of measurements through the temporary steel casing (0-1,330 feet), measures the natural gamma activity in the formation adjacent to the borehole. This log is very helpful in picking the tops of the individual formations encountered during drilling, based on natural gamma signatures available from nearby wells where the stratigraphy has been established. Copies of the borehole geophysical logs are included in **Appendix H**.

Recorded with the natural gamma log are the medium and deep induction log curves, which are only recorded in the open hole (non-cased) section of the borehole. These two logs are also very helpful in identifying stratigraphic units from borehole to borehole.

Highly resistive beds (high ohm-meters) are often indicative of confining type units, whereas more permeable zones are usually lower in resistivity (low ohm-meters).

Compensated neutron and density logs have a radioactive source and are used to measure formation density and porosity. These logs are particularly valuable in identifying confining units that typically have porosities less than 5%, bulk matrix, as opposed to permeable zones, which may exceed 10% porosity or more.

Borehole geophysical logs, along with the core samples, were used to select the proposed injection interval used for injection packer testing. The interval identified on the logs between 1,880 and 2,160 feet corresponds with the most favorable zone for injection in the lower portion of the borehole.

I.10 Calculated Area of Influence (AOI) for Various Injection Rates

Purpose

A digital model was constructed to determine the potential impact of injection on groundwater heads in the vicinity of the site.

Visual MODFLOW (Waterloo Hydrologic, Inc., Version 4.3.0), which incorporates the U.S. Geological Survey codes of MODFLOW 2005 (Harbaugh et al., 2005), was selected for the analysis.

Approach and Area

The groundwater model was constructed to represent the injection zone of 1,880 to 2,160 feet bls (280 feet in length). The zone is comprised of dense limestone with hydraulic conductivities less than 1 ft/d. An aquifer thickness of 280 feet was estimated from the geophysical logs between the confining units identified in the logs and hydraulic testing. The area modeled was chosen to be large enough that the impacts of injection would not be influenced by the horizontal boundaries (500,000 feet by 500,000 feet) for the time period being simulated. The area of modeled extent is illustrated on **Figure 1** of **Appendix I.**

Boundaries

The injection zone is represented in the groundwater model by the same estimated thickness of the Mississippian Limestone deposits, 280 feet. Because the injection zone is overlain and underlain by confining units, the top and bottom of the model were considered to be no-flow boundaries that coincide with the confining units. Additional no-flow boundaries were set to coincide with the horizontal limits of the modeled area. These conditions made the simulations of injection very conservative.

Model Grid

The MODFLOW code simulates groundwater flow over the modeling domain represented by a model grid. Groundwater head and flux are solved within each grid cell by applying a finite-difference numerical method.

The model grid (**Appendix I**, **Figure 2**) was non-uniform, with the cell dimensions adjusted so that the injection well was represented by a grid cell of 10 feet by 10 feet. The grid dimensions were 156 rows and 156 columns, covering an area of 500,000 feet east to west and 500,000 feet north to south. Maximum cell size was 5,000 feet by 5,000 feet, and the minimum cell size was 10 feet on a side.

Hydraulic Properties

Values of hydraulic conductivity for the rocks making up the injection zone ranged from 0.125 to 0.250 ft/day (URS, 2008). These values were derived from the aquifer testing program conducted by URS (October, 2008) and are considered reasonable for the rock types encountered. The actual injection test and laboratory data are tabulated in Revised **Appendices E** and **F**.

Simulations

Five sets of injection tests were simulated, varying the rate and the time of injection. Injection rates were simulated at 1, 2, 5, 10 and 20 gpm. For each rate, output was obtained for time intervals of 1, 2, 5, 10, 20, and 50 years. **Appendix I, Figures 3** through **7** show contours of the pressure (psi) increase in the injection zone for each injection rate. The contour interval of 1 psi for each injection rate is presented for each of the simulated time intervals. **Table 1** shows the estimated head at the injection well at 50 years for each injection rate.

Pressure in injection well immediately outside of well.

Injection Rate, gpm	Head, in feet, at well *	Head, in psi, at well *
1	+ 5.48	+ 2.37
2	+ 10.98	+ 4.75
5	+ 27.45	+ 11.88
10	+ 54.90	+ 23.77
20	+ 109.80	+ 47.53

* + = above well head

Results and Conclusions

Injection pressures for all simulations were all well within acceptable limits. The injection interval selected (1,890 – 2,160 feet) should be suitable for proposed brine fluid. Scepter requests a maximum well head pressure sufficient to attain a sustained flow of 50 gpm for a 24 hour period in order to accommodate periods of heavy rainfall. Actual maximum well head pressure will be determined upon completion of final well during initial testing.

Figures showing the AOI for various pumping rates and periods of time, as listed below, are contained in Appendix I.

<u>Appendix I</u>

Interpretation of Packer Test Data

Hook-wall packer tests were conducted at four (4) intervals in the core hole, under the following conditions.

Test	Interval (feet bls)	Pumping Rate Gallon Per Minute, Steps (gpm)	Wellhead Pressure (psi)	gpm/psi
1	2,087 – 2,175	16, 26	75, 85	0.22, 0.32
2	2,000 – 2,175	14, 21, 32	55, 67, 82	0.25, 0.32, 0.40
3	2,230 – 2,285	14, 19	68, 72	0.21, 0.27
4	2,175 – 2,285	14, 19, 35	40, 53, 84	0.37, 0.42

Tests in zones 1 and 2 were within the prospective target injection interval 1880 – 2160 feet. Test results ranged from 16 to 32 gpm, with corresponding wellhead pressures ranging from 55 to 85 psi at the wellhead. It should be noted that the drilling fluid level before the injection testing began, and during the injection testing, was measured at 5.5 feet bls. The fluid at the time of the test, in the borehole, consisted of relatively clean potable water as a result of flushing the borehole, from the bottom, prior to injection testing. Therefore, measurements on the pressure gauge are "shut-in pressures" (below the packer) and require little adjustment to reflect true formation pressures (possibly about 2% for fluid density differences) assuming a formation TDS of about 20,000 mg/L in the injection interval tested.

where did the 0.6 come from?

Calculating a conservative safe injection pressure, well below the fracture pressure for the type of limestones present, using a value of 0.60 psi/ft (top of injection zone), an estimated safe wellhead injection pressure would be at least:

> 0.60 – 0.43 (weight of water, psi/ft) x depth (ft) to top of injection zone
>
> 0.17 psi/ft x 1,880 feet (top of receiving zone) = 319.6 psi

Considering that the highest pressure measured during injection tests in intervals 1 and 2 were 105 and 85 psi, at 16 and 32 gpm, respectively (note: interval 2 consists of interval 1 plus an additional 87 feet, accounting for the lower wellhead pressure but higher injection rate), the maximum pressure recorded in the longer interval (85 psi at 32 gpm) was about 27 percent of the conservative calculated maximum injection pressure.

Injection tests of intervals 3 and 4 (2,175-2,285 feet) were conducted below the proposed injection zone (1,880-2,160 feet) into a much lower permeability section, as indicated by visually inspecting the core samples and the borehole geophysical logs. Although these tests were in confining-type material, it appeared that leakage of the packer allowed the fluid to migrate upwards to the 1,880-2,160-foot interval. At no time during the test did the static water level (5.5 feet bls) begin flowing from the borehole, indicating these volumes were being received easily by the prospective injection interval.

Although laboratory tests were not conducted in the zone below 2,160 feet to the total depth of 2,286 feet, the visual and borehole geophysical logs indicate a very tight, dense cemented limestone (1-2% porosity) with an estimated permeability of 10^{-9} to 10^{-10} cm/sec.

ATTACHMENT J

ATTACHMENT J. STIMULATION PROGRAM

J.1 Class I wells are not recommended in areas where fracture stimulation will be necessary. If it is proposed, procedures should be included in the permit application which show how the operator proposes to confine fractures to the injection formation. If acid or other type of stimulation is proposed, procedures should also be included in the permit application under this section.

It is anticipated that an acid solution will be used of approximately 100 gallons of 15% hydrochloric acid or 1 gallon per foot of open hole, whichever is less, to break down the organic polymer in the drilling mud. The acid will be pumped through a tremie pipe and packer into the open portion of the hole in a manner that will prevent contact with the steel casing. The acid will be neutralized upon contact with the carbonate formation.

ATTACHMENT K

ATTACHMENT K. INJECTION PROCEDURES

K.1 Plant plan showing flow line of waste stream(s) to be injected

Figure K-1 shows the landfill, sumps, storage tanks and injection well pad.

K.2 Description of filters, storage tanks (including capacity), and any pretreatment processes and facilities, including location on plant plan

Leachate is collected from a single sump located in the lined landfill. Currently there is one large active landfill cell which is capped as the landfill is filled. The one sump pump is capable of delivering 25 gallons per minute to three above ground storage tanks.

This pump, water level activated, turns on when there is a sufficient amount of leachate to run the pump. Leachate is pumped to one of three 10,500 gallon above ground polypropylene storage tanks piped in series for storage. Currently these tanks are pumped into tanker trucks and hauled to a deep injection well near Valparaiso, operated by Cathay Disposal where the water is blended with other wastewater for deep well disposal. (Note: the current pumping apparatus will remain in place as a "back-up" should the need arise to maintain or repair the injection well.)

Pretreatment of the leachate prior to injection is not proposed at this time. A mechanical wire mesh strainer will be installed after the tanks to help assure that solid particles are not a significant constituent of the injectate, which could cause formation plugging and lead to well inefficiency if left unchecked. If suspended solids present a "formation plugging" concern then settlement tanks (with funnel shaped bottoms) will be installed to collect and remove suspended solids from the leachate.

K.3 Description of injection pumps, including rate capacity

Injection pumps will be selected to match the permitted well head pressures and volumes. At this time the anticipated design maximum pumping rate and pressure is 50 gallons per minute and not to exceed a well head pressure of 300 psi.

In order to have injection system back-up it is anticipated that there will be two pumps in parallel capable of pumping 25 gpm each at 300 psi. In most cases only one of the pumps would be operational at a time and pump at as low a rate as feasible (2 to 5 gallons per minute) unless rainfall conditions dictate otherwise. In no care will the maximum permitted pressure be exceeded. Formation fracture pressures will be determined for operating permit based on pump test data of the corehole and actual well (IW-1).

K.4 Description of annulus pressure maintenance system

The annular fluid pressure maintenance system will consist of a small (approximate 20 gallon) tank which will allow for thermal expansion and contraction of the tubing inside the well with changes of temperature of the injectate from the storage tanks. Additional corrosion inhibitor fluid and modify annular pressure as needed can be conducted via this system if necessary. The pressure in the annulus will, at all times, will be maintained at least 100 psi above the injection pressure. A calibrated pressure gauge will measure the current and maximum pressure at all times. Any loss of annular fluid will be noted and the EPA notified of the proposed corrective actions to be taken.

K.5 Description of alarm and shut-off system

In the unforeseen event that the annular pressure falls below the injection pressure a signal will be sent to shut off the injection pumps and a signal will be sent remotely to the nearby Scepter recycling facility which is manned 24 hours per day. **Figure K-2** shows a proposed piping and instrumentation diagram (P and ID).

ATTACHMENT L

ATTACHMENT L. CONSTRUCTION PROCEDURES

L.1 Detailed well construction procedures

Fortunately most of the well construction details will already be known for the injection well prior to beginning construction based on data collected during the September-November 2008 continuous corehole boring located approximately 150 feet from the site of the injection well (IW-1). This information is anticipated to include:

1) Surface casing depth, 8 inch, new, schedule J-55 steel (15.5 #/ft), set in a nominal 12-1/4 inch borehole grouted by the Halliburton method from bottom of casing (BOC) to land surface with Type "A" Portland cement. The setting depth will be into the confining unit at the base of the USDW, based on continuous core data and actual water quality samples collected from the corehole. At this time this depth is estimated to be 500-600 feet below land surface at the drill site (land surface elevation is approximately 533 ft AMSL).

2) Long string of casing depth, 5½ inch, new, J-55 steel casing set in a nominal 7-7/8 inch borehole and cemented (Class "A" cement) by the Halliburton method from bottom of casing to land surface. The setting depth will be based on data from the continuous core currently being drilled at the site. The anticipated depth will be at least 1,300 feet below land surface, (St. Louis Formation) and may extend to as deep as the lower Devonian (2500 feet) depending upon injection tests results on various zones within the corehole.

   Both of the casing strings will be geophysically logged with temperature (gradient and differential) and cement bond logs (CBL) after the cement has set for at least 24 hours.

   Drilling of the boreholes will be conducted by the mud rotary method using a lightweight bentonite drill mud circulating cuttings to land surface. Drilling inside of the 8 inch surface casing will continue from the cement plug to total depth, through the proposed injection zone. Prior to setting the 5½ inch long string of casing a temporary cement plug will be placed at the casing setting depth. The long string of casing, 42 to 44 foot lengths, threaded and coupled, will be set to the top of the temporary plug and cemented by the Halliburton method. After the final long string of casing has been cemented, set and geophysically logged for at least 48 hours, the cement plug will be tagged, marked and drilled out below the bottom of the casing using as light as possible drill mud to facilitate removal of drill cuttings and mud during well development to achieve maximum well depth. Drilling will continue to total depth as predetermined by data obtained from the corehole. Most likely the finish of the injection zone will be by the open hole method – unless the stability of the borehole is questionable.

Development of the borehole will be by the surge block method, possibly using up to 1 gallon per foot of open hole hydrochloric acid (15% solution) to break down and remove the drilling mud cake.

Tubing, Packer and Annularl Fluid

After the open portion of the borehole has been fully developed and flushed with clean potable water, the packer and tubing will be set in the long string of casing.

The packer proposed is model AD-1 Tension Packer, manufactured by BJ Service Company. The packer will be Model 45A4 designed to fit the 5½ inch (O.D.) J-55 (15.5 #/ft) casing. The packer will be set inside and within 50 feet of the lower end of the casing. Product information is included in **Appendix C** of this Permit.

Tubing, Packer and Annular Fluid Specifications

Injection tubing proposed to match the Packer is the Duoline 10-PE Liner Pipe (Model 2-3/8" O.D., E U 8 RD). This tubing has a 0.135" (wall thickness) polyethelene liner for 2-7/8" (6.5 #/ft) external upset threaded and coupled pipe. The I.D. of the poly tubing is 2.0 inches. Specifications are included in **Appendix C**. Inserts are included to join pipes together to form a continuous polyethelene seal from top to bottom of the tubing. The polyethelene liner provides excellent corrosion protection to the tubing. This packer and tubing assembly has been in use, successfully, for many years in this area for Class II brine injection wells.

All manufacturer assembly specifications and instructions will be followed to insure longevity of the injection tubing system. Tubing centralizers will be set above the packer, 40 feet above the packer and at intervals recommended by the manufacturer.

Corrosion inhibiting fluid will be Baracor (a Baroid product), or equivalent, mixed with potable water (1%) according to manufacturer specifications. The corrosion inhibiting fluid will be circulated in sufficient quantity to insure the previous casing fluid has been thoroughly removed and flushed. Baracor specifications sheets are included in **Appendix C** of this Permit.

L.2 Estimated time table for drilling, logging and formation testing

Once the drill rig is on site the following schedule is anticipate, based on non unforeseen mechanical or weather problems.

	Week	Total Weeks
1) Rig set up, ready to drill	0	
2) Set 8 inch surface casing through USDW (600 ft) and cement into confining unit. Possibly add BOP to top of casing, if needed.	1	1
3) Geophysically log surface casing, drill 7-7/8" borehole to total depth, set casing landing plug at target depth, set 5 inch casing cement to land surface, cement to set 2 days, geophysically log cased hole.	3	4
4) Drill out cement plug, drill open hole to total depth, develop well, run geophysical logs on open hole (gamma, caliper, temperature, resistivity).	2	6
5) Set 2-7/8 O.D. inch EUE tubing (33'-35' lengths) and packer within 50 foot of bottom of long string casing. Set tubing to land surface, lock in packer and set in tubing hanger and well seal with threaded fitting for well head. Circulate corrosion inhibiting fluid from bottom to land surface, test annular pressure to permit specifications.	3	9

L3. Proposed open-hole and cased hole geophysical logs

Open Hole Logs

It should be noted that a continuous corehole is currently being drilled approximately 150 feet from the location of the injection well IW-1. These cores, with additional borehole geophysical logs and information obtained by the driller regarding: cuttings, drill fluid behavior, and formation packer testing and drill stem formation fluid pumping will be used to determine formation lithology, porosity, permeability, water quality and cement placement and bonding quality from borehole geophysical logs to design and construct the best well possible to meet, and exceed, all the regulatory requirements and performance requirements of this project.

Open hole logs – prior to setting the surface and long casing strings the following borehole geophysical logs will be run in the open borehole:

Caliper (x – y)
Natural gamma
Normal electric logs (16", 64", SP)
Deviation (long string)

Inside casing, after the casing has been set and cement:
Cement bond log (acoustic)
Temperature (gradient and differential)

Injection zone, open hole logs (injection zone(s))
Caliper (x-y)
Natural gamma
Normal electric logs (16", 64", SP)
Accoustic televiewer

All logs will be recorded in the field and stored digitally for inclusion in the final reports.

L.4 Proposed mechanical testing (cement bond logs, radioactive tracer log, and temperature, noise or oxygen activation log are required prior to injection of waste)

The first casing installed will be new 8-5/8" (O.D.) threaded and coupled grade J-55 (24#/ft) steel casing in a 12-1/4 inch borehole to a depth of 500-600 feet below land surface. This casing is to facilitate drilling of the borehole for the long string of casing for mud circulation purposes and hole stability. This casing will be grouted bottom to top by the Halliburton method with Class "A" cement. Once the cement has set a minimum of 24 hours the borehole will be drilled to total depth using a 7-7/8 inch roller core bit. After the hole is properly conditioned prior to setting the 5½ inch (O.D.) casing, J-55 (15.5 #/ft) geophysical logs will be run including: caliper logs, deviation natural gamma, normal resistivity, SP, porosity fracture finder (acoustic velocity) logs. Once the logs are determined to show the borehole to be satisfactory new 5½ inch (O.D.) threaded and coupled grade J-55 casing (42-44 ft lengths) will be installed in the 7-7/8 inch borehole to the predetermined setting depth above the proposed injection zone. The bottom of the 5½ inch casing will be fitted with a drillable cement shoe to facilitate cementing of the annular space with Class "A" cement from total casing depth to land surface.

Borehole geophysical logs run on the long string will include, after a minimum of 24 hours after cementing, temperature log and cement bond log to verify the presence of the continuous cement seal behind the long string of 5½ inch casing.

Prior to setting the tubing a radioactive tracer log will be run after the borehole has been developed of drill mud to the total depth, including the proposed injection zone (development of the open hole is discussed in Attachment M). Prior to loading the radioactive tracer tool a gamma log of the entire cased hole (and open hole) will be run in the down and up directions to obtain background gamma logs.

Potable water will be piped into the well to attain a velocity of 10 feet per minute into the well. Iodine 131 (medicinal grade, less than 14 days old), will be released in the upper (100 ft) mid level (1000 ft) and 5 feet above the bottom of casing to show uniform flow (no flow in or out of casing) and at the bottom of the casing to observe if flow is occurring upwards behind the bottom of the casing. Injection will take place 5 feet below the bottom of the casing and the upper gamma detection brought up to 5 feet above the bottom of the casing to observe gamma counts, and compared to background.

L.5 Proposed buffer fluid and volume, if any.

No butter fluid is anticipated to be used in this well. If the need changes, the Applicant will request this change in writing to EPA Region 5.

ATTACHMENT M

ATTACHMENT M. CONSTRUCTION DETAILS

The following information should be included in well schematics and/or tables.
A well schematic is shown on **Figure M-1** and a table with the well specifications is included as **Table M-1**.

M.1 Proposed construction of well, including total depth, completion type, casing sizes, types, weights, and setting depths.

The casing setting depths and injection interval will be predetermined from the test core hole drilled nearby in September-October, 2008. Data from the test core hole will include:

1) Continuous cores of PQ, NQ, and NX sizes will be run from land surface to total depth. These cores will be used to determine locations of confining units and prospective injection zones. Selected intervals of the core will be sent for geotechnical testing for porosity, density and permeability.
2) Formation water quality tests at various intervals to assess the depth of the Underground Source of Drinking Water (USDW).
3) Water levels at various depths to determine formation pore pressure throughout the borehole, including injection zones.
4) Borehole geophysical logs will be run to aid in identifying lithologic and hydrologic zones. Logs include caliper, natural gamma, normal resistivity, and spontaneous potential (SP).
5) Injectivity test of clean water into selected intervals. Injection rates and pressures will be recorded over time to determine formation capacity.

M.2 Proposed cement type and amount for all casing (All casings should be cemented to surface)

The cement used for all strings of casing will be Type "A" Portland cement, 5.2 gallons per 94-lb sack, yielding 1.18 cubic ft/sack. No cement additives are anticipated. All casings will be cemented in a continuous pour to land surface. A 25% extra volume of cement will be mixed and injected, by the Halliburton method, to cover potential formation losses. The cement will be allowed to set a minimum of 24 hours before drilling of the bottom cement shoe and plug. In the event the cement does not completely return to surface or settles below land surface, a tremie pipe will be used to bring the cement to land surface.

M3. Tubing and packer specifications, including size, type, and setting depths

The tubing proposed for the injection well is similar to tubing frequently used in this area in Class II wells injecting petroleum waste brine at similar depths (1,500 – 2,500 feet). This steel tubing has a good history for endurance and performance. The 2-7/8-inch OD EUE tubing manufactured by BJ Services Company (see **Appendix C** for specifications) is a steel tubing with a polyethelene, non-corrosive liner, relatively inert to the 9.5-10 pH brine type water leachate proposed to be injected. The inside of the pipe and fittings is lined with a polyethelene liner (2.259-inch), resistant to corrosion. This pipe will be extended to within 50 feet of the injection zone and bottom of casing through the AD-1 BJ Services Company packer assembly (specifications, **Appendix C**). Lengths of the tubing are approximately 32-33 feet and have a box end type pipe thread. Pipe joints will be torqued to the manufacturer's specifications.

The proposed Packer Assembly also has a proven history in this area and at the proposed depths. The AD-1 BJ Services Company (see **Appendix C** for specifications) is easily set and retrievable if the need arises.

M.4 Wellhead construction details

Figure M-2 shows the wellhead details for the proposed injection well, IW-1. The well head will be located on a concrete bermed pad which will facilitate access, repairs and inspection for leaks if in the unlikely event they were to occur. All gauges will be calibrated for true measurements and all gauges will have a duplicate method for measurement (duplicate gauge or digital recording device).

The annular space will be supplied by a pressurized vessel at land surface and monitored for pressure and volume changes.

Two identical pumps, each rated for 25 gallons per minute (300 psig) in parallel, will be wired and pumped independently in case one pump had to be removed for service.

M.5 Location of sample tap and female coupling for independent determination of annulus pressure

The ¼ inch, female-threaded, sample post and valve are located just upstream of the check valve at the wellhead, next to the influent pressure gauge (**Figure M-2**).

M.6 Revised Well Construction Procedures Based on Core Hole Data and Tests - September – November, 2008

The following specifications are for the proposed final injection well Scepter IW-1.

Surface Casing - 8", J-55 steel, 600+ feet, bls, seated into a competent dolomite between 601 and 618 feet below land surface. Casing will be grouted from bottom to top with Type "A" cement.

Long String of Casing - 5", J-55 steel, set into the Salem limestone, at or below 1,879 feet below land surface. The casing will have a minimum 20 foot shoe set after the 7-7/8" borehole has been completed to total depth presumably in the 1,850-1,900 foot range, depending upon actual site conditions. After the 5" long string has been set the casing will be grouted by the Haliburton method from the bottom of the casing to land surface.

Open Hole Completion – After the cement has set a minimum of 24 hours the cement plug will be drilled out and the borehole cleared to the total depth of 2,170. The producing zone will be completed as an open hole finish (1,900 – 2,170 feet).

Site specific data obtained from the core hole drilled, tested and logged did not change any of the construction procedures or diameters of the well specifications presented in the October, 2008 application. Data obtained from the core hole did provide site specific data for the casing setting depths and selecting the proposed injection zone interval (1,900 – 2,170 feet bls).

Figure M-3 shows the proposed injection zone (1,900 – 2,170 feet bls) and the corresponding formations from 1,700 feet bls to the core hole total depth (2,286 feet). The bottom 126 feet of the core hole (2,160 – 2,286 feet) encountered a dense, low porosity, low permeability limestone which provides a base, or "no-flow layer", to the proposed injection zone (1,900 – 2,170 feet bls).

Figure M-4 replaces **Figure M-1** as the proposed well schematic for the proposed final injection well. The construction procedures, well materials and diameters are the same as previously proposed in the October 8th, 2008 submittal, however the setting depths have been finalized based on the data obtained from the core hole. Location of the actual well will be approximately 150-200 feet from the core hole to avoid potential impact of cement grout used to plug the core hole.

Table M-1

Proposed Injection Well Specifications
Scepter, Inc., Bicknell, Indiana

General Overview – A Class I, non-hazardous waste injection well (2 million gallons per year, 4-5 gpm) for disposal of low volumes of a brine leachate waste. The well will be a 5 inch, steel cased, mud rotary drilled well, finished open hole in to sands and Paleozoic carbonates approximately 2000 feet below land surface. The waste will be injected through a 2-7/8 inch O.D. polyethelene lined steel tubing (2.0 inch I.D.) in a fluid fill annular space well.

Drilling method – mud rotary

Surface Casing – 8 inch steel, J-55, 24 #/ft set below the USDW (about 600 feet). Cemented (Class "A") 12-1/4 inch hole

Long String - 5½ inch steel, J-55 (15.5 #/ft) set to approximately 1,500 – 2,000 feet. Cemented (Class "A") 7-7/8 inch hole

Open Hole Finish - 7-7/8 inch hole, about 2,000 – 2,500 feet, developed with 15% HCI, 1 gallon per foot. May case and perforate if formation unstable.

Borehole Geophysical Logs

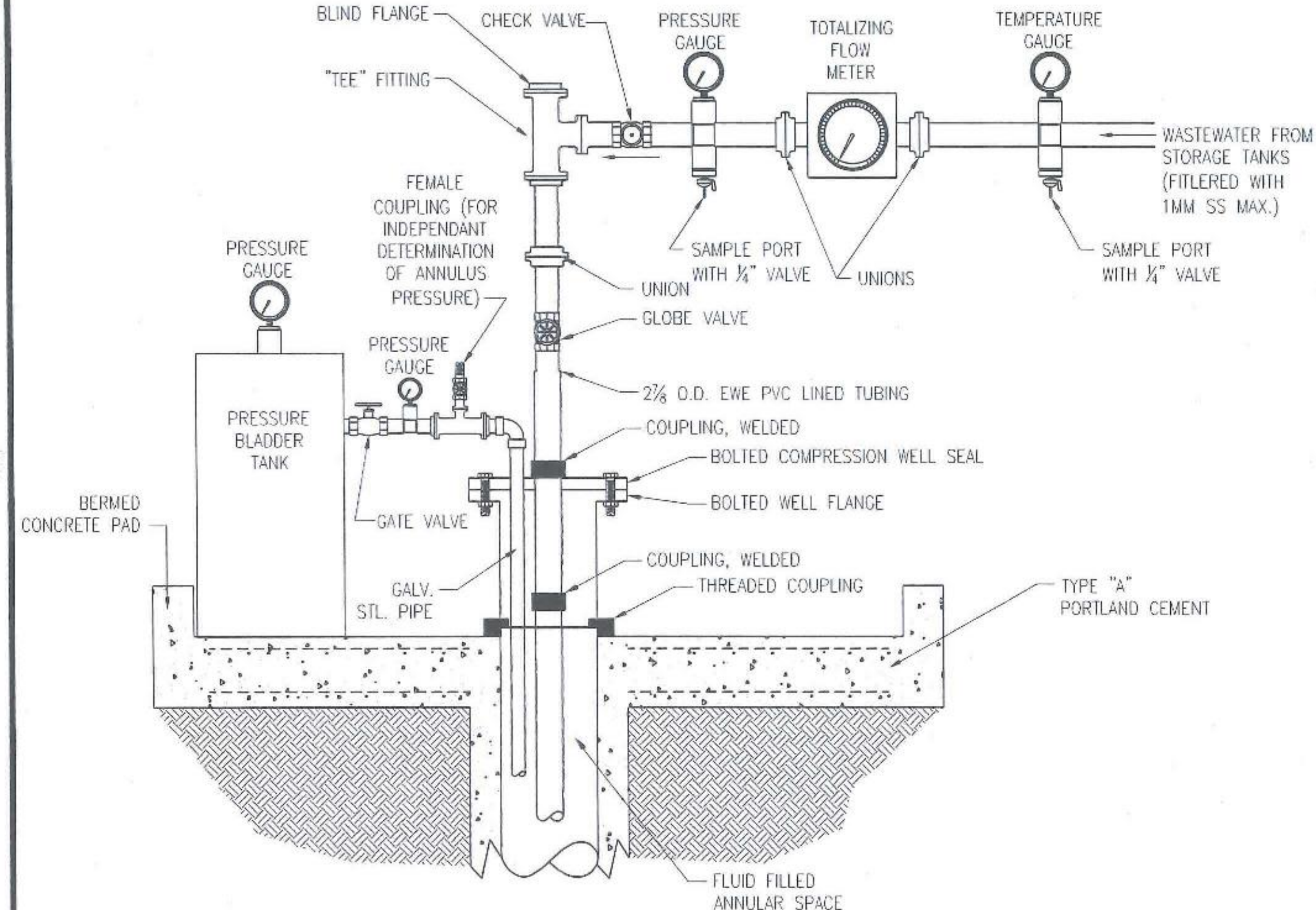
	Gamma	x-y Caliper	Resistivity	Deviation	Acoustic Velocity
Surface Casing Borehole	X	X			
Long String Borehole	X	X	X	X	X
Cemented Long String	X	X			
Open Hole	X	X	X		X

Cement Class "A" – mixed at 5.2 gallons per 94# sack yielding (1.8 cu.ft./sack)

Tubing – Duoline 10 PE (polyethelen) liner in 2-7/8 inch O.D. steel, EUE ID – 2.080", wall thickness 0.135" PE couplings for 100% coverage (See Appendix C)

Packer – BJ Services Company, AD-1 Tension Packer model (See Appendix C for more information)

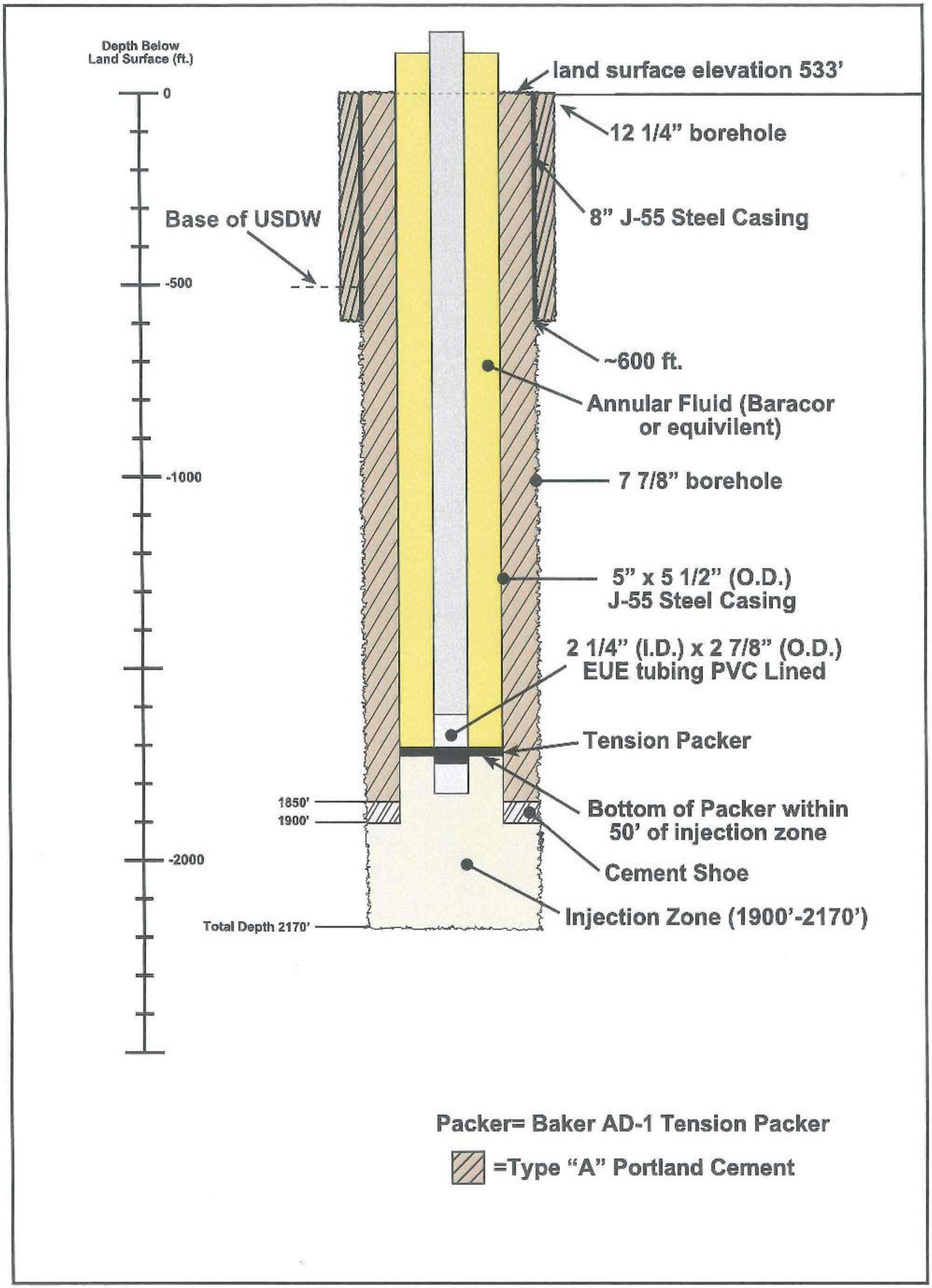
Corrosion Inhibiting Fluid – 1% mixing of Baracor in potable water (pH = 7.0) throughout annular space, pressurized 100 psig above well head injection pressure. (See Appendix C for more information)



CONCEPTUAL CLASS I, BICKNELL, INDIANA
XX INJECTION WELL HEAD ASSEMBLY
NOT TO SCALE

SCEPTER BICKNELL	URS Tallahassee, Florida SCALE: NTS — DRAWN BY: LR / CHECKED BY: WH — DATE: 9/08 K:\ACAD\DWGS\	CONCEPTUAL INJECTION WELL HEAD DIAGRAM	PROJ NO 20500022	FIG NO M–2

Scepter, Inc.
Bicknell, IN
Class I Well Injection Well IW-I



Proposed Class I Injection Well IW-1 Schematic
Based on corehole data

Figure M-4

ATTACHMENT N

ATTACHMENT N. DOES NOT APPLY TO CLASS I WELLS

ATTACHMENT O

ATTACHMENT O. PLANS FOR WELL FAILURES

The applicant should submit contingency plans for 1. Actions that will be taken if mechanical integrity of well is lost and 2. Storage or alternate treatment or disposal of waste in the case of emergency shut-in.

Contingency Plans for Well Failure

An abnormal event that may incapacitate a section of the facility, or the entire deep-injection well can happen at any time. Such events may include not only a well failure, but also power failures, equipment breakdown, fire, etc. Any of these events, either individually or together, can render the deep-injection well system inoperable, cutting off the means of disposal through injection.

It is estimated that the only out-of-service period for the well will arise solely from regulatory testing requirements and will be approximately one week every five years. The contingency plans for such an occurrence consist of completely shutting down the deep-injection well. The continuing testing requirements will provide an early warning of any potential well failure, and the timely enactment of remedial measures will be underway as early as possible to prevent all but the direct emergencies.

The uppermost fitting of the tubing is a bolted flange threaded to the tubing (on the lower side), above the flange is a 3-inch stainless steel gate valve which can be closed to isolate all injection pad mechanical parts, in the event of any leaks or problems. This valve can be closed, and any or all the parts disassembled, replaced or repaired. The pump system includes two industrial injection pumps that can be operated independently by isolation valves if one system were to fail.

Upon well failure, leachate generated from the landfill would continue to be stored in the three 10,500 gallon tanks (31,500 gallons of total storage). The tanks would be pumped into tanker trucks and the contents transported, as before, to approve off-site use or disposal locations. Firsts, efforts will be made to use a much of the leachate as possible as evaporative cooling water in Scepter's rotary furnace operations, and secondly, pending approval of IDEM, use of the leachate for spray cooling of salt cake at the recycling facility. Remaining volumes will be shipped to current off-site disposer which is United Solutions, 807 Reading Road, Cincinnati, OH 45241 (Waste Broker) which ships the leachate to Cathay Disposal, 4901 Evans Avenue, Valparaiso, IN 46383 for deep well injection. The equipment, trucks and disposal agreements will be kept current and available in case of a total injection well failure.

Whenever the above contingency plans are enacted, EPA must be notified within 24 hours of a material defect or malfunction. All instances of emergency discharge will be reported immediately to the EPA and Indiana Department of Environmental Management (IDEM). Interpretative reports may be required in the event of such a breakdown or malfunction for submittal to FDEP.

Below is a listing of agency members, contact phone numbers, and e-mail addresses.

Indiana' State Contacts

Class I, III, IV and V (1422 Program)
Lisa Perenchio
US EPA Region 5
Phone: 312-886-6593
Email: perenchio.lisa@epa.gov
Mailing Address: 77 W Jackson Blvd
Chicago, IL 60604-3590

Class II (1425 Program)
Mona Nemecek
Indiana Department of Natural Resources, Oil and Gas Division
Phone: 317-232-0045
Email: Mnemecek@dnr.in.gov
Mailing Address: 402 W Washington St
Room W293
Indianapolis, IN 46204

ATTACHMENT P

ATTACHMENT P. MONITORING PROGRAM

P.1 WASTE ANALYSIS PLAN

The Waste Analysis plan consists of collecting an injectate sample on a calendar quarterly frequency. The injectate will be obtained from the storage tank closest to the injection well and analyzed for indicator parameters similar to those specified in Scepter's Indiana Department of Environmental Management (IDEM) issued Facility Permit FP 42-07 dated January 14, 2003. The analytes and methods used will include:

Field pH	EPA Method 150.1
Ammonia	EPA Method 350.1
Chloride	EPA Method 325.3
Cyanide	EPA Method 335.4
Fluoride	EPA Method 340.2
Total Dissolved Solids	EPA Method 160.1
Total Suspended Solids	EPA Method 160.2
Sodium (dissolved)	EPA Method 6000/7000
Potassium (dissolved)	EPA Method 6000/7000
Aluminum (dissolved)	EPA Method 6000/7000
Selenium	EPA Method 6000/7000
Cadmium	EPA Method 6000/7000
Chromium	EPA Method 6000/7000

P.2 DESCRIPTION OF MONITORING AND RECORDING SYSTEM FOR INJECTION PRESSURE, RATE, AND VOLUME, AND FOR ANNULUS PRESSURE

The monitoring and recording system for injection pressure, injection rate, injected volume, injection temperature, and annulus pressure is shown on Figure K-2, Conceptual Piping and Instrumentation Diagram (P&ID). In summary, the injection pressure, injection rate, injected volume, injection temperature, and annulus pressure will be continuously recorded on a paperless chart recorder.

P.3 DESCRIPTION OF SIGHT GLASS LEVEL MONITORING AND RECORDING, IF A SEAL POT SYSTEM OF ANNULUS PRESSURE MAINTENANCE IS PROPOSED

This section is not applicable because a seal pot system of annulus pressure maintenance is not proposed.

P.4 GROUNDWATER MONITORING PLAN AND QUALITY ASSURANCE PROJECT PLAN

This section is not applicable because the waste is not classified as a "restricted hazardous waste."

ATTACHMENT Q

ATTACHMENT Q. PLUGGING AND ABANDONMENT PLAN

Q.1 Signed plugging and abandonment form showing amount and type of cement, placement method, and estimated cost. (Region 5 required a cement plug to extend from the base of the lowermost casing to the surface.)

Proposed Injection Well Plugging and Abandonment Plan

In the event that the deep-injection well is found to be beyond repair and unable to safely accept fluid from the system, and cannot be feasibly repaired, EPA may order the well to be abandoned. The legal abandonment of a deep-injection well consists of cementing or plugging the well. The objective of this plugging of the well is to prevent the mixing of injected fluids with other fluids in the geologic strata above the injection zone.

The deep-injection well abandonment procedure must be documented and the documentation submitted to EPA as proof of well abandonment. The owner of the deep-injection well will retain all records and documents collected during the life of the well and for five (5) years after the plugging and abandonment of the well.

Plan Details

In the event that the injection well has to be abandoned, the following procedures will be undertaken to seal the well from the injection zone to the surface and to prevent waters from the injection zone to mix with the local Underground Source of Drinking Water (USDW).

- The appropriate abandonment permit application will be submitted to the EPA for approval prior to plugging and abandonment as required.
- The EPA will be notified at least 60 days prior to the plugging and abandonment of the well(s), unless there is an imminent threat to the USDW.

Injection Well Plugging and Abandonment Procedures

- Mobilize workover rig and geophysical logger, run x-y caliper.
- In preparation for removing the wellhead, surface flow, if present in the injection well, will be controlled by injecting a weighted material into the well to counterbalance artesian pressure (killing the well). The weighted material may be salt, barite, or other approved dense material.
- After killing the well, if necessary, the wellhead, tubing hanger, 2-7/8-inch tubing, and packer will be removed from the well.
- Caliper log the open hole and casing.

- A cement basket of appropriate size will be conveyed to near the bottom of the 5½-inch casing. Tubing will be used to convey type A cement from the bottom of the open hole up to 10 feet, and the cement plug will be allowed to set for a minimum of 24 hours.

- After the water level has stabilized, neat cement (Type II, sulfate-resistant) will be pumped down the well in stages through small diameter tubing using a high-pressure positive-displacement pump. During cementing operations, the top of the cement from the previous stage will be physically tagged. The tubing will be tripped out of the hole as cement is pumped down the well.

- The well will be filled to land surface with cement.

Q.2 Signed estimate of plugging and abandonment costs (and post-closure costs, if applicable) by an independent firm

Following this page is a cost estimate (**Form Q-1**) from a local drilling contractor (Gwaltney Drilling, Washington, Indiana) which provides a contractor's current estimate of the cost required to plug and abandon the well, along with the calculated volumes required to plug the well prepared by the project hydrogeologist (**Form Q-2**)for the proposed Bicknell Class I Well. Also included is EPA Form 7520-14, Plugging and Abandonment Plan.

See attached Cost Estimate from Gwaltney Drilling (**Form Q-1**).

Q.3 Closure plan, including plans to acquire a representative fluid sample from the first aquifer overlying the injection zone (Only necessary for wells which inject restricted hazardous wastes)

N/A

Q.4 Post-closure plan, which covers the requirements of 40 CFR 146.72 (Only necessary for hazardous waste wells)

N/A

Gwaltney Drilling, Inc.
107 SE 3rd Street
Washington, Indiana 47501
(812) 254-5085

September 18, 2008

Thomas Kwader
Principal Hydrologist
URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317
(850) 574-3197

Subject: Cost Estimate for Plugging Proposed Scepter Injection Well Bicknell, Indiana

Dear Tom:

Gwaltney Drilling, Inc. can provide the following service as necessary for the prices indicated below. The items listed below are based on the plan you provided.

Item	Description	Total
1)	Mobilization/Demobilization	$500
2)	Remove Well Head Assembly	$700
3)	Remove EUE Tubing and Packer	$1,425
4)	Set Plug, Cement Inside of 5-1/2" from 2500' to Land Surface with Type 'A' Cement	$7,000
	TOTAL	**$9,625**

If you have any questions or need any additional information please call us.

Sincerely,

Mike Crouch
Gwaltney Drilling, Inc.

Form Q-1

Scepter Bicknell Injection Well
Summary of Opinion of Probable Cost for
Plugging and Abandonment of Injection Well

October 2008

Drilling Contractor

Item	Description	Total
1)	Mobilization/Demobilization	\$500
2)	Remove Well Head Assembly	\$700
3)	Remove EUE Tubing and Packer	\$1,425
4)	Set Plug, Cement Inside of 5½-inch Casing from 2500 feet to Land Surface with Type A Cement	\$7,000
5)	Borehole Geophysical Logging	\$2,500
6)	Field Oversight and Report Documenting Abandonment	\$4,000
	TOTAL	\$16,125

Cement Calculation: $\frac{2500 \text{ ft} \times 0.13 \text{ ft}^3/\text{ft}}{1.18 \text{ ft}^3/\text{sack}} = 275 \text{ sacks}$

Prepared by:

Thomas Kwader 10/8/08

Tom Kwader, PhD, PG
Principal Hydrogeologist
URS Corporation
Licensed Florida Water Well Contractor
Certified Professional Well Log Analyst (SPWLA #5851)

Paperwork Reduction Act Notice

The public reporting and record keeping burden for this collection of information is estimated to average 19.5 hours annually for operators of Class I wells, 6 hours annually for operators of Class II wells, and 8 hours annually for operators of Class III wells. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15.

Please send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Office of Environmental Information, Collection Strategies Division, U.S. Environmental Protection Agency (2822), Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Officer for EPA. Please include the EPA ICR number and OMB control number in any correspondence.

ATTACHMENT R

ATTACHMENT R. NECESSARY RESOURCES

R.1 Signed mechanism of financial assurance sufficient to cover closure (and post-closure, if applicable) of well. (Applicants for both hazardous and non-hazardous waste wells should use 40 CFR 144, Subpart F as a guideline)

The Certification of Financial Responsibility is included as **Form R-1**.

ATTACHMENT S

CERTIFICATION OF FINANCIAL RESPONSIBILITY

Scepter, Inc., a licensed business of the State of Indiana, hereby certifies that it has unconditionally obligated itself to have the financial resources necessary to close, plug, and abandon its Class I Underground Injection Well. It is further understood that the cost estimate to conduct plugging and abandonment, established on October 8 , 2008, shall be reviewed on an annual basis, and this obligation shall incorporate accumulated inflation costs.

Injection Well Covered by this Agreement:

Injection Well	IW-1
Facility Name:	Scepter, Inc., Bicknell Landfill
Facility Address:	8700 North Bruce Road Bicknell, Indiana 47512

Contact:	Garney B. Scott, III - President
Phone Number:	(931) 535-3565
Address:	1485 Scepter Lane Waverly, TN 37185

Latitude/Longitude of Injection Well: 38° 47' 27.80"N, 87° 21' 56.82"W
GMS ID Number:
EPA ID #:
Current Plugging & Abandonment Cost Estimate: $16,125

It is hereby understood that the cancellation of this Certification may not take place without prior written consent of the Secretary of the U.S. EPA, Region 5.

G. B. Scott III
(Signature)

Garney B. Scott III
(Print/Type Name)

President
(Title)

10/8/08
(Date)

STATE OF INDIANA
COUNTY OF KNOX

The foregoing instrument was acknowledged before me this 8 day of OCTOBER, 2008, by GARNEY B SCOTT III who is personally known to me and did not take an oath.

Virginia A. Major
Notary Public
MY COMMISSION EXPIRES 6/15/2016
VIRGINIA A. MAJOR

Form R-1

ATTACHMENT S. AQUIFER EXEMPTIONS

Region 5 does not encourage applications for aquifer exemptions for Class I wells. If application is made 40 CFR 146.4 may be used as a guideline.

Applicant will not be requesting an aquifer exemption.

ATTACHMENT T

ATTACHMENT T. EXISTING EPA PERMITS

Briefly describe activities which require the applicant to obtain permits under the RCRA, UIC, NPDES, or PSD programs. List all permits or construction approvals received or applied for at the facility where the well will be located under any of the following programs.

1. **Hazardous Waste Management under RCRA**
2. **UIC program under SDWA**
3. **NPDES program under CWA**
4. **Prevention of Significant Deterioration (PSD) program under the Clean Air Act**
5. **Nonattainment program under the Clean Air Act**
6. **Dredge and fill permits under section 404 of CWA**
7. **Other relevant environmental permits, including State permits**

The only other permit for the 23.5-acre landfill facility, located 3 miles from the plant, is a State of Indiana, Restricted Waste Site Type I, Solid Waste Facility Permit (FP 42.07), currently being renewed by the State.

ATTACHMENT U

ATTACHMENT U – DESCRIPTION OF BUSINESS

U.1 Briefly describe the nature of the business and list up to four SIC codes which best reflect the principal products or services provided by the facility.

Scepter's businesses include companies engaged in aluminum production. Its plants process aluminum dross and scrap into ingots, molten aluminum, and other products. The company also trades aluminum and recycles used beverage cans (UBCs). Scepter companies operate from facilities in the U.S. (Indiana, New York, and Tennessee) and Canada (Quebec). Company CEO Garney Scott, Jr. founded Scepter in 1986.

The Scepter Bicknell facility recycles aluminum (SIC 3341) from a variety of collected and scrap aluminum waste. The scrap or dross is mixed with salt flux (NaCl and KCl) and placed in rotary tilt furnaces. The molten recycled aluminum is separated from the flux material and impurities. Very little liquid is present in the waste, which is then taken to the landfill. Rainwater, currently, percolating into the landfill cells is collected for disposal.

PRIOR RELEASES

U.2 For existing wells, list the highest injection pressure in use in this well since construction and the approximate dates of injection near that pressure.

NA. No other wells exist.

U.3 List of prior releases of waste through injection wells at this facility to intervals other than that proposed in this permit application.

There are no previous injection wells.

IF THE PERMIT APPLICATION IS FOR HAZARDOUS WASTE INJECTION, THE APPLICANT MUST ALSO INCLUDE THE FOLLOWING:

U.4 All applicable RCRA waste codes for listed an characteristic wastes proposed for injection in this well.

NA. This is not a request for a Hazardous Waste Injection well.

U.5 All applicable Land Disposal Restriction deadlines or "ban dates."

NA.

U.6 Proposed schedule for submittal of exemption petition, if waste is restricted from land disposal.

NA.

U.7 Additional testing proposed to support the exemption petition.

NA.

U.8 Future plans for waste minimization and a certified statement which meets the requirements of 40 CFR 146.70(d).

NA.